

FINANCIAL STABILITY REPORT

FIRST HALF 2023



LAGO CHUNGARÁ
Región de Arica y
Paríacota



Financial Stability Report

FIRST HALF 2023

Financial policy of the Central Bank of Chile (BCCh)

The Central Bank of Chile has as its purpose to ensure the stability of the currency and the normal functioning of internal and external payments. To fulfill this second objective, it must safeguard the stability of the financial system within the perimeter of its legal powers, implemented from a macro-financial perspective. The decisions and actions derived from its powers are part of its financial policy framework. In this context, financial stability is considered to exist when the system performs its functions normally or without significant disruptions, even in the face of adverse temporary situations. Identifying potential risk events, vulnerabilities and mitigators, together with assessing their impact on the financial system, are at the core of the Central Bank of Chile's financial policy analysis.

Financial policy conduct and implementation

The BCCh conducts its financial policy seeking to contribute, within its scope of competence, to the stability of the financial system. This has been deepening and gaining stability in recent decades due, in part, to the development of financial policy tools and their adequate application, which in turn has contributed to monetary policy effectiveness and increased the economy's resilience to disruptive events.

The Bank implements its financial policy through rigorous decision-making processes, in joint and coordinated actions with the supervisor and regulator. In particular, the BCCh issues and administers financial regulations, decides on the activation and deactivation of the countercyclical capital buffer, prepares reports and issues opinions on the impact of potential legal or regulatory changes on which it is consulted. In addition to these measures, it may exercise the role of lender of last resort for banking companies and other liquidity management tools.

Information disclosure and transparency

The Financial Stability Report (FSR) is one of the BCCh's main financial policy and communication instruments. In view of its mandate, the FSR delivers the Board's view on the main risks, vulnerabilities and mitigators affecting financial stability.

The FSR is published twice a year, in May and November. In line with international best practices, it is produced by specialized professionals and is led by the Financial Policy Division. Its contents are disseminated through various channels. In this way, the Central Bank communicates its analysis and implements its financial policy in a transparent and active manner.



Cover picture: Chungará Lake / Arica-Parinacota Region, Chile.

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CONTENTS*/

SUMMARY	3
I. TRENDS IN FINANCIAL MARKETS	7
II. CREDIT BORROWERS	16
III. CREDIT LENDERS	26
IV. FINANCIAL POLICY DEVELOPMENTS	34
V. HOUSEHOLDS' RESPONSE TO THE PANDEMIC AND THEIR VULNERABILITIES IN THE PRESENT CONTEXT	51
BOXES	
Recent evolution of the depth of the local financial market	14
Gender differences in Chilean families' borrowing	25
Market risk in banks' stress tests	32
Counter-cyclical Capital Buffer implementation in the world	46
Strengthening of repo market	49
Households stress tests: a microdata-based approach	60

*/ This is a translation of a document originally written in Spanish. In case of discrepancy, the original version prevails. The statistical cutoff date for this Financial Stability Report is 10 may 2023, except where noted otherwise.



SUMMARY

Financial conditions have deteriorated worldwide and exhibit an unusual degree of uncertainty regarding their future evolution. After a long period of low interest rates and abundant liquidity, the monetary tightening revealed vulnerabilities in the banking sectors of certain developed economies. The turbulence that began in March following the failure of several banks has been mitigated by the swift and coordinated action of policy makers. Since then, the risks of abrupt asset price corrections and capital outflows have grown, especially in emerging economies. In a context where monetary policy may need to remain tight for longer in the developed world, market sentiment remains fragile regarding these countries' banks and concerns remain about the extent and magnitude of latent vulnerabilities. Locally, the impact of these events has been limited, as the economy continues to resolve the effects of macroeconomic imbalances accumulated in recent years. In this process, the financial position of households has tightened, and saving rates have turned negative. Meanwhile, firms have been gradually reducing their indebtedness in the aftermath of the pandemic. The greater use of credit cards and credit lines —among both households and businesses— has translated into greater exposure to interest rates, while defaults have returned to pre-pandemic levels, and the situation does not suggest the presence of elements of systemic risk. The local banking system has sufficient liquidity and solvency to withstand the stress scenario and —in view of the recent international banking situation— it differs in terms of its business model, regulation, and supervision. During the pandemic years, agents used up their savings and turned to borrowing to navigate the most severe crisis of recent times. The recomposition of their capacities to face new shocks has occurred at different speeds, and it is crucial for this process to go on. Going forward, it is essential to prioritize initiatives that promote saving and strengthen the financial system's capacity to cushion adverse events.

CURRENT STATUS OF THE FINANCIAL SYSTEM

Financial conditions have deteriorated worldwide and exhibit a higher-than-usual degree of uncertainty regarding their future evolution. After a prolonged period of low interest rates and abundant liquidity, the monetary normalization triggered adjustments in asset valuations around the world. In this context, since March there have been episodes of stress in U.S. banks, which revealed deficiencies in regulation and supervision, as well as problems in the risk management of the entities affected. Although policy makers have reacted to contain this turbulence, doubts persist in the market regarding the financial systems of developed economies, which is reflected in high volatility, even tighter lending standards and asset prices that have not fully reversed the falls seen at the onset of these episodes. This occurs while the Federal Reserve and the European Central Bank continue with their monetary tightening processes. In particular, in the United States there have been signs of a possible pause, while the ECB has noted that further hikes are still needed.



The local financial market has not been especially affected by external turbulence. Since our last Report, sovereign interest rates have fallen by around 120 and 60 bp (basis points) for peso and UF-indexed bonds, respectively, and remain near their historical averages. A decrease in the sovereign spread was also observed. In the same period, corporate and bank risk premiums rose between 5bp and 30bp. Local political-economic uncertainty decreased significantly since the previous Report, although in the days following the events involving international banks, there was a slight increase. Currently, the indicator is somewhat above its historical average. Meanwhile, the volatility of long-term sovereign interest rates increased only slightly. Bank bond issues have maintained their dynamism in recent months, while corporate bonds showed incipient recovery in April. In this context, pension funds have been the main demanders of these instruments and mutual funds have boosted the liquidity of their portfolios. The lower activity of the real-estate sector has had no significant impact on the performance of insurance companies.

On aggregate, corporate indebtedness and bank defaults are at their pre-pandemic levels. At the end of 2022, the currency mismatch in large companies remained limited, while their overall financial position was normalizing towards 2019 levels. Operating margins (i.e., sales revenue minus input-related expenses) are still below their historical averages despite some recent recovery. This has been faster in the larger companies. In recent months, commercial credit has continued to show declines in its annual variation, while non-payment has continued to rise, approaching pre-pandemic numbers. The increase continues to involve mostly companies in the retail, construction and real-estate sectors, smaller companies and those that opted for debt rescheduling and/or FOGAPE credits. The construction and real-estate sector continues to be weak, facing a less dynamic market and greater financing restrictions, both for building projects and mortgage loans.

In the past two years, the financial position of households deteriorated, with a significant reduction in savings, to -0.7% of GDP. The economic support measures implemented during the pandemic, because of both their nature and magnitude, generated a transitory and unprecedented surge in household liquidity. This boosted aggregate consumption and temporarily lowered personal debt and defaults, as described in the thematic chapter of this Report. However, the macro-financial imbalances generated by the sharp and lasting increase in aggregate consumption have been significant. One such case has been high and persistent inflation. These imbalances also eroded the net financial wealth of households. At the end of 2022, it reached 120% of GDP, the equivalent to that of a decade ago. Pension fund withdrawals—which totaled 18% of GDP and accounted for roughly two-thirds of the increase in liquidity— not only had an adverse effect on household savings, but also raised the cost of long-term financing and reduced the financial system's capacity to absorb shocks.

Household defaults increased since the previous Report, with greater intensity in credit card and credit line debts, and among lower-income borrowers. Personal loans continue to slow down. Compared to last year, real consumer debt fell in April. This occurred with a reduction in the revolving component, while mortgage debt showed moderate growth. The financial situation of lower-income individuals has become tighter, with a greater financial burden resulting from the increased use of credit lines and credit cards, in a context of higher interest rates. This has materialized in a more pronounced increase in their non-payment of consumer loans, which has been concentrated precisely in revolving debts. Meanwhile, higher-income households maintain more liquidity and have increased their mortgage debt, with a smaller increase in non-payment compared to the rest of the population.



Despite the recent stabilization of sovereign debt, fiscal space to mitigate new shocks has reduced.

This follows a decade of sustained increase, with sovereign debt rising from 12% to 38% of GDP. According to the projections of the latest Public Finances Report, by the end of 2027 public debt will stand at around 41% of GDP. Maintaining fiscal consolidation is essential to mitigate future shocks without exceeding the prudent debt level. A sustainable path of indebtedness improves investors' perception of risk, and thus reduces the cost of financing for all other agents in the economy.

Stress tests reflect the solvency of the banking sector. Commercial and consumer loans show contractions with respect to the previous year, in line with the adjustment of the economy. Meanwhile, the first-quarter Bank Lending Survey indicates that supply conditions continue to tighten due to higher risk perceptions, and demand has continued to weaken. Credit risk remains on an upward trend, especially in the consumer and commercial segments, whose levels are comparable to those seen before the pandemic. Banks have accumulated provisions to face an eventual deepening of this trend. The results of the stress tests show that the system is in an adequate solvency and liquidity position to face the materialization of stressed scenarios. However, like all other economic players, it is important for the system to further strengthen its capacity to address new adverse events.

The recent disruptions in international banking underscore the importance of having a robust regulatory and supervisory framework that is adequately implemented.

It should be noted that the current framework, for the Chilean banking industry as a whole, has the most relevant components of Basel III fully active for both liquidity and solvency. The implementation of this new scheme began in 2020 and will be completed in 2025. The FMC (Financial Market Commission) and the Central Bank maintain close coordination to perform stress tests on the banking system. Likewise, these institutions have a broad set of tools and legal powers to prevent—and deal with—critical situations.

The regulatory agenda incorporates new initiatives aimed at strengthening the Chilean financial system.

Regarding the Central Bank's powers, it considers elements that will enable retained securitization schemes, contributing to expanding the availability of high-quality financial instruments. It also updates the regulations for payment card operators or acquirers, incorporating the possibility of developing new business models. At the same time, it continues to implement initiatives already issued concerning new market infrastructures and foreign exchange modernization. In legislative matters, the bill to strengthen the resilience of the financial system—recently submitted to Congress—which complements the toolkit for dealing with stressful episodes, stands out. Likewise, the consolidated debt bill, which will improve the credit risk management of financial intermediaries and the monitoring capacity of the financial authorities, was approved in its first stage. In addition, the FMC and the Central Bank, in coordination with the Ministry of Finance, are preparing a proposal to improve the bank resolution framework. Finally, the discussion on the adoption of a risk-based capital and supervision scheme for the insurance industry, a sector that plays a key role in the local economy, is expected to be reactivated shortly.



MAIN RISKS

A worsening of the global macro-financial scenario could generate episodes of high volatility, reduce liquidity and trigger capital outflows from emerging economies, further deteriorating their financial conditions. In developed countries, uncertainty persists regarding the magnitude and extent of latent vulnerabilities in the financial sector, both banking and non-banking. An intensification of such scenario, aside from increasing volatility and risk premiums, could trigger capital outflows from emerging economies, reducing funding availability. This occurs in a context where central banks face high inflationary persistence, which may require maintaining a contractionary monetary policy stance for longer than expected, until inflation shows clear signs of subsiding.

In the country, it is imperative to further the process of correcting the macroeconomic imbalances accumulated in the last few years, thus restoring its capacity to deal with shocks. In their transit through the pandemic, the different players in the Chilean economy made use of their savings and increased their indebtedness to face the greatest crisis in modern times. As has been emphasized in previous Reports, it is crucial to rebuild these capacities, as they will make it possible to better face potential new adverse episodes. Capacities to withstand new shocks have been rebuilt at different speeds among agents. Households, whose financial position has deteriorated significantly, are lagging behind. Going forward, it is essential to prioritize initiatives that promote saving. In addition, measures that affect the normal functioning of the financial system, increase uncertainty and the cost of financing, or reduce its capacity to cushion negative shocks should be avoided.

At the Financial Policy Meeting of the first half of 2023, the Board of the Central Bank of Chile agreed to activate the Countercyclical Capital Buffer (CCyB) for banks, setting it at 0.5% of risk-weighted assets, due in one year. The CCyB is a macroprudential requirement aimed at boosting the economy's resilience in the face of severe stress scenarios resulting from systemic risks. The requirement consists in building a capital buffer to make it available in the event of severe stress scenarios. The Board has activated the CCyB as a precautionary measure in the face of heightened external uncertainty (Chapter I). Although the macroeconomic scenario has evolved in line with expectations, the risk of a severe external shock has increased. Although unlikely, its negative impact on the economy would be significant. In such a circumstance, the release of the previously constituted CCyB will help mitigate the impacts on the evolution of credit to households and businesses (Chapter II). The Board estimates that, considering the current level of capitalization, the available bank buffers (Chapter III), the CCyB level and the defined term to implement it, its activation will have limited and transitory effects on the evolution of credit (Chapter IV). Moreover, the implementation of the CCyB is framed in a context where it is necessary for all participants in the economy to continue rebuilding their capacities to withstand possible adverse events. The definition of the CCyB's level and term has been backed by a prior favorable report from Chile's Financial Market Commission.



I. FINANCIAL MARKETS TRENDS

Since the last Report, the external macro-financial scenario has worsened. In a context of monetary stimulus withdrawals, after years of low interest rates and abundant liquidity, some commercial banks in the U.S. suffered deposit runs and falls in their asset prices that led several institutions to bankruptcy. These events became an important source of risk for global financial stability. Moreover, the inflationary process in the world has not abated at the expected speed, which has forced central banks to keep their monetary policy in contractionary territory for longer than previously thought. In this scenario, there are some sources of vulnerability, such as potential underlying weaknesses in the global banking system and uncertainty about lending conditions.

These are compounded with the weak dynamism of the Chinese real-estate sector, the growing exposure of non-bank financial institutions, and the process of financial fragmentation in the wake of the geopolitical conflicts. At home, uncertainty has eased most recently and, in general, markets have been largely unaffected by the global banking turmoil that began in March. In fact, there has been less volatility in the peso and a marginal drop in both the level and volatility of long-term sovereign rates. Going forward, one looming threat for Chile, and emerging economies in general, is that a worsening of the international scenario could trigger new episodes of financial stress, asset price volatility and capital outflows, affecting foreign currency financing and liquidity. At this point in time, there is a need to prioritize measures and policies aimed at favoring stable long-term savings and avoid those that reduce the capacity of the capital market to contribute to cushioning shocks.

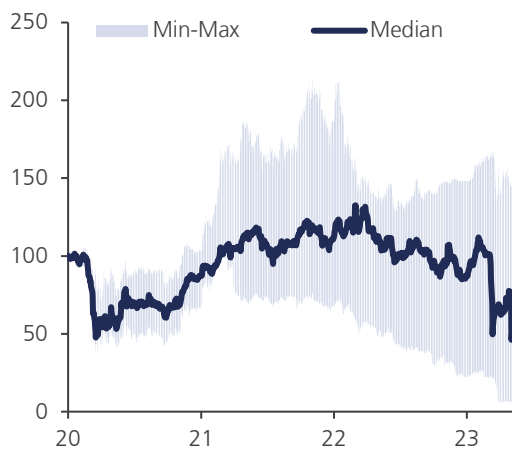
INTERNATIONAL FINANCIAL SITUATION

The recent global turbulence originating in the banking sector of some advanced economies was contained by the policy reaction, but its effects on volatility and asset prices persist. After a prolonged period of plentiful liquidity and low rates, the monetary adjustment revealed different problems in some banks in advanced economies. In early March, the default of several regional banks in the U.S. —following substantial withdrawals of bank deposits and reports of significant losses— had an impact on the market valuation of these institutions (figure I.1). Bank stock prices fell by close to 40% on average, yields on shorter-dated government bonds declined and volatility increased, especially in the fixed-income market (figure I.2). This episode brought to light shortcomings in regulation and supervision, as well as in risk management in the affected entities (chapter IV). The timely and coordinated reaction of policy makers and the injection of extraordinary liquidity to the U.S. banking system —amounting to close to US\$959 billion between March and April (see statistical appendix)— made it possible to contain the effects and limited its spillover to other banks and economies.



The process of monetary contraction in advanced economies is expected to continue until inflation shows clear signs of easing. After the turbulence seen in the international banking sector, the market expected a pause in the monetary tightening process by the world's main central banks ([Monetary Policy Report, March 2023](#)). However, most of these authorities opted to maintain the course of their monetary policies so as to continue with their inflation control processes, only moderating the tone of their communication making it less contractionary. In this context, since March the Fed and the Bank of England have raised their rates by 50 basis points (bp), and the European Central Bank by 75 bp, while some central banks of emerging economies have further raised or maintained their monetary policy rates at high levels (figure I.3). Meanwhile, advanced and emerging economies' sovereign rates have stayed at levels similar to our previous Financial Stability Report (FSR) (statistical appendix), while the global risk premium has dropped by about 60 bp (figure I.4).

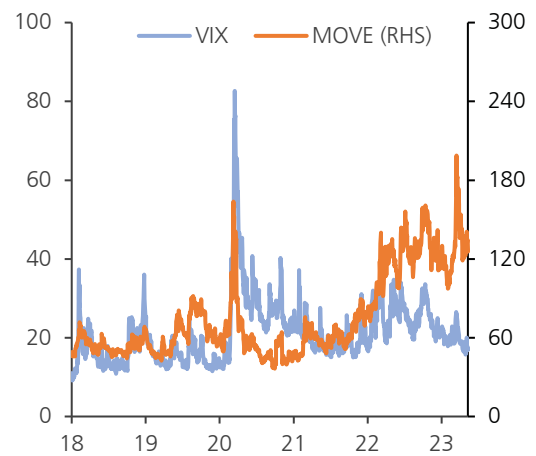
FIGURE I.1 STOCK MARKET EVOLUTION OF MOST AFFECTED BANKS IN THE U.S. AND THE EUROZONE (*)
(index, base Jan.20=100)



(*) Min-Max denote minimum and maximum values in the distribution. Selected banks are: New York Community Bancorp, Pacwest Bancorp, Western Alliance, First Horizon, Credit Suisse, UBS.

Source: Central Bank of Chile based on Bloomberg data.

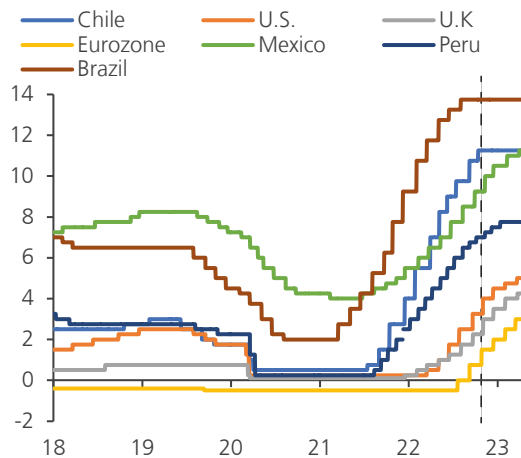
FIGURE I.2 IMPLIED VOLATILITY (*)
(percent, indexes)



(*) VIX: Implied volatility in one-month options on the S&P500. MOVE: index of implied volatilities on one-month options on 2-, 5-, 10- and 30-year U.S. Treasury bills.

Source: Central Bank of Chile based on Bloomberg data.

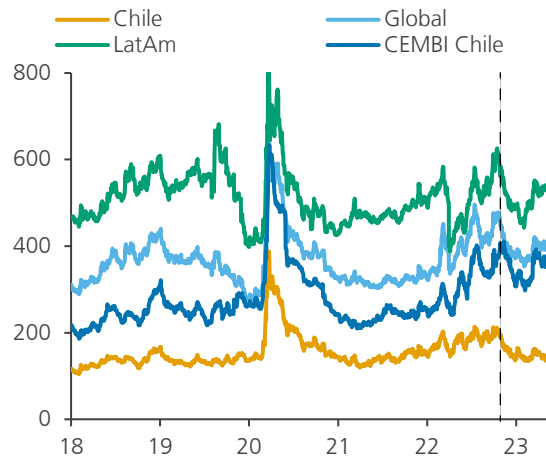
FIGURE I.3 MONETARY POLICY INTEREST RATES (*)
(percent)



(*) Dashed vertical line denotes publication date of Financial Stability Report of second half 2022.

Source: Central Bank of Chile based on Bloomberg data.

FIGURE I.4 EMBI (*)
(basis points)



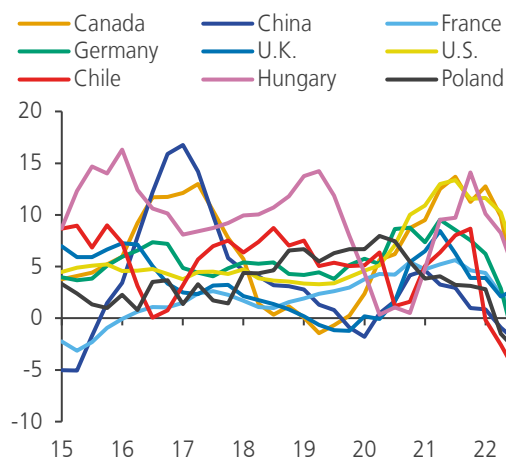


International real estate prices continue to weaken in the aftermath of the pandemic. Globally, the commercial real estate sectors has lost dynamism, in line with tighter financial conditions, resulting in across-the-board declines in real housing prices in both emerging and developed countries (figure I.5). In China, there are still some areas of concern linked to the high level of indebtedness of the sector's companies and local governments (statistical appendix). In Germany, housing prices fell 11.4% year-on-year in the last quarter as demand fell due to higher financing costs. In Chile, prices fell in line with fundamentals, with declines concentrated in existing residential units (chapter II).

The growing international non-bank financial sector has increased its financial leverage, exposure to illiquid assets, and interconnections with the banking sector. Pension funds, hedge funds, insurance companies and other non-bank financial institutions have grown significantly in recent years, reaching close to 50% of global financial assets ([Financial Stability Board, 2022c](#)). Said growth has been accompanied by an increase in their leverage level in debt instruments and derivatives to promote their investments and their interconnections with the rest of the market agents. Among the vulnerabilities observed is the growing share of illiquid assets in the portfolios of these entities. Thus, in the last decade, some mutual funds and insurance companies have increased their holdings of this type of assets to nearly 20% of their portfolios (figure I.6). In turn, non-bank financial institutions have stepped up their interconnections with the banking system, which has been reflected in an increase in cross-border links between banks and these institutions. ([GFSR, April 2023](#)).

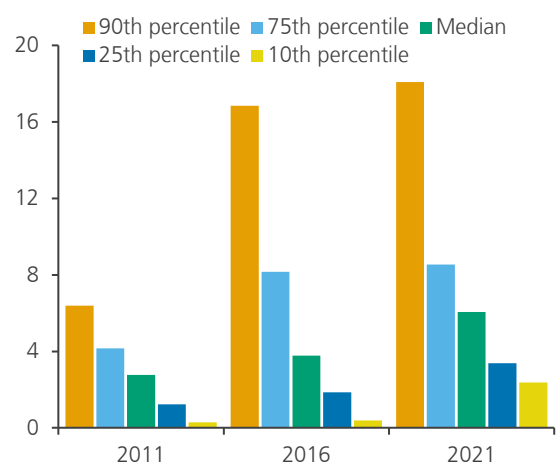
The risks of financial fragmentation due to geopolitical conflicts are still present. Tensions between Russia and Ukraine have not subsided in recent months. Yet, the financial effects of this conflict have had no major impact on the prices of financial assets in the recent past. Still, a deepening of the geopolitical conflict contribute to increase asset price volatility, and cause trade flow disruptions and capital flow reversals in Europe that may affect emerging economies especially hard ([GFSR, April 2023](#)).

FIGURE I.5 REAL HOUSING PRICES (*)
(annual change, percent)



(*) For the case of Chile the real home price index (IPV) is used. Latest data is from 2022Q4.
Source: Central Bank of Chile based on OECD data.

FIGURE I.6 ILIQUID ASSETS IN GLOBAL INSURANCE COMPANIES' PORTFOLIOS
(percent)



Source: Central Bank of Chile based on Bloomberg and [April 2023 GFSR](#).



THE LOCAL FINANCIAL SCENARIO

The local financial market has been largely unaffected by the banking turmoil in advanced economies.

The daily economic and political uncertainty index (Depuc) posted a significant reduction since our previous FS Report. Although there was an increase in this index around the international banking events occurred last March, this increase was reversed, and the indicator is now somewhat above its historical average (statistical appendix). There was also a limited upward impact on the volatility of sovereign rates (figure I.7), while exchange rate volatility decreased (figure I.8). Thus, in view of the improved functioning of the foreign exchange market, the Board of the BCCCh decided to begin the process of gradually reducing its forward operations in this market at the end of April. Meanwhile, with respect to the latest FS Report, the Chilean peso appreciated by around \$180 per dollar, long-term sovereign interest rates in pesos and UF decreased by around 115 and 60 bp, respectively (figure I.9), and the local stock market increased its valuation by around 8%.

Several indicators of local capital market depth have declined in the last two years, for both liquidity and market size (box I.1).

Although liquidity has been reduced in several Latin American economies, the decline has been sharper in the Chilean fixed- and variable-income markets. At the same time, market size indicators show a contraction in some markets that have acted in the past as buffers against external shocks and fluctuations, such as assets in pension funds, which fell from just over 80% by the end of 2019 to 56% most recently (figure I.10), and total buying and selling positions in the derivatives market of the formal exchange market also declined (statistical appendix).

Most recently, the local fixed-income market has shown a reactivation of bond issues.

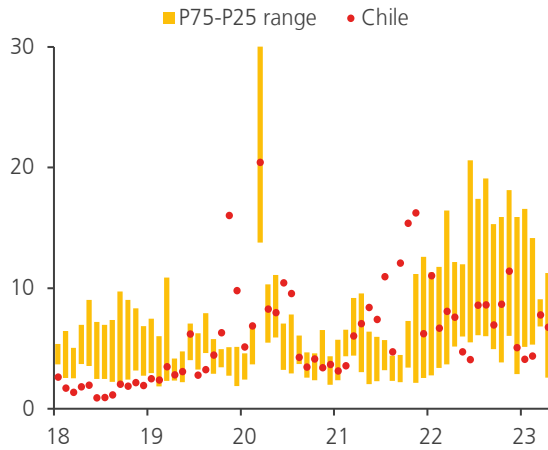
Since the beginning of the year, there has been an increase in bank bond issues and, as from April, in corporate issues (figure I.11). Despite this greater volume, transactions in the fixed-income market continue to be low by historical standards (figure I.12), with risk premiums—especially those of the corporate sector—standing between 30bp and 45bp above the average of the last 15 years (figure I.13).

Pension funds have gradually increased their fixed-income holdings in recent months in the absence of new early withdrawals of pension savings and limited transfers across multi-funds.

Pension funds have adjusted the composition and duration of their investment portfolio (statistical appendix), by increasing their share in local fixed-income instruments—in view of the new issues by the banking, corporate and government sectors—and reducing their international variable-income position. At the same time, mutual funds have improved their liquidity position throughout this year. In particular, type-3 mutual funds have increased their participation in government bonds, while type-1 mutual funds have recomposed their portfolios by increasing their share in time deposits in recent months, which, together with PDBC, account for close to 95% of the total portfolio. Meanwhile, towards the end of 2022, some life insurance companies have seen their asset adequacy decrease due to the changed slope of the interest rate curve. In addition, at a general level, the slower activity in the real-estate sector has not significantly affected the indebtedness and capital adequacy of credit insurance companies (statistical appendix).

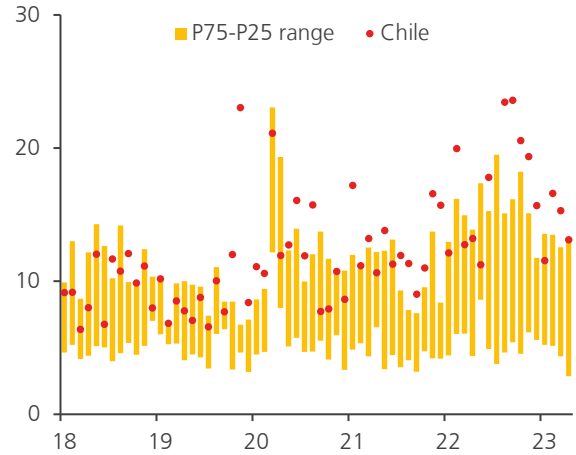


FIGURE I.7 SOVEREIGN RATES' VOLATILITY IN EMERGING ECONOMIES (*)
(basis points)



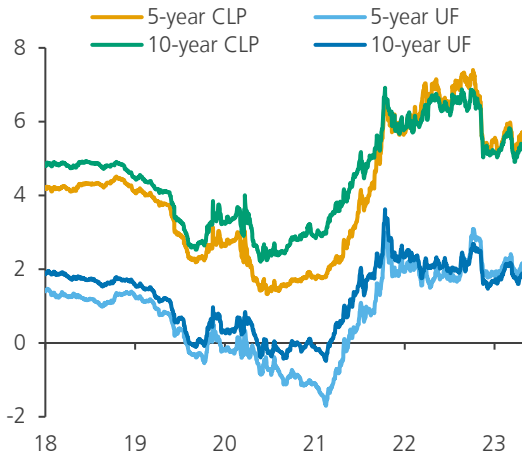
(*) Selected emerging markets include: Brazil, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Perú, Poland, Russia and Turkey. Annualized standard deviation of daily return over each month.
Source: Central Bank of Chile based on Bloomberg data.

FIGURE I.8 EXCHANGE RATE VOLATILITY IN EMERGING ECONOMIES (*)
(percent)



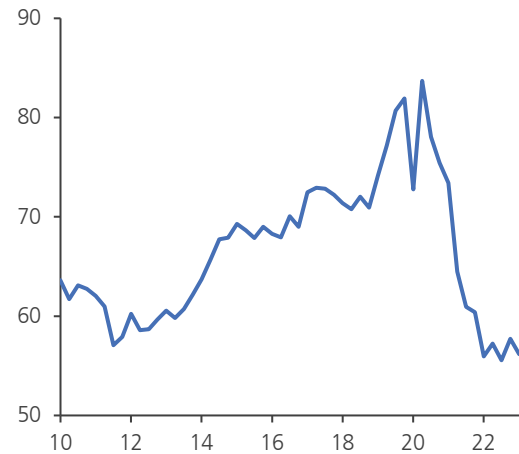
(*) Selected emerging markets include: Brazil, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Perú, Poland, Russia and Turkey. Annualized standard deviation of daily return over each month.
Source: Central Bank of Chile based on Bloomberg data.

FIGURE I.9 BENCHMARK RATES IN LOCAL FIXED-INCOME MARKET
(percentage points)



Source: Central Bank of Chile based on RiskAmerica data.

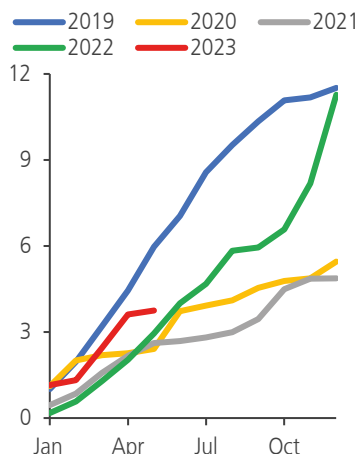
FIGURE I.10 PENSION FUNDS' ASSETS (*)
(percent of GDP)



(*) Quarterly GDP data at current prices are used, accumulating 4 moving quarters, and monthly data on total assets of the pension fund system, considering the last month of each quarter. First quarter 2023 GDP calculated based on the Economic Expectations Survey.
Source: Central Bank of Chile based on Pension Superintendency data.



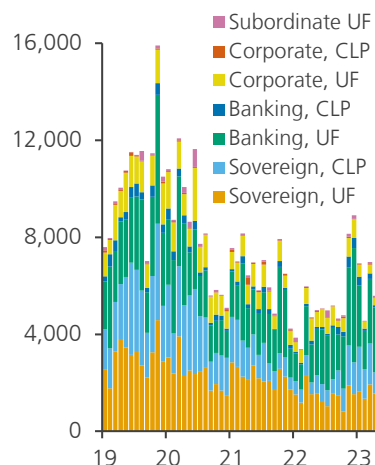
FIGURE I.11 CORPORATE AND BANK BONDS ISSUED IN THE LOCAL MARKET (*)
(billions of dollars)



(*) Data at 11 May, 2023. Figure for each month refers to cumulative issuances from the beginning of the year to respective month. Includes issues in pesos and UF in the local market conducted through the Santiago Stock Exchange.

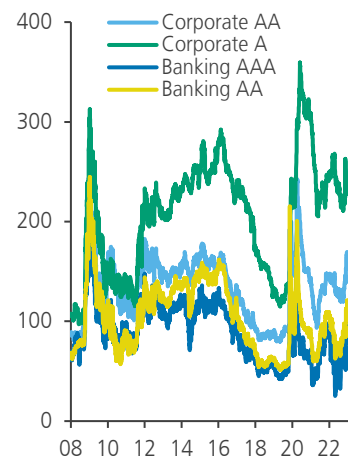
Source: Central Bank of Chile based on information from the Santiago Stock Exchange and the Central Securities Depository.

FIGURE I.12 FIXED-INCOME TRANSACTIONS
(billions of pesos)



Source: Central Bank of Chile based on Central Securities Depository data.

FIGURE I.13 RISK SPREADS
(basis points)



Source: Central Bank of Chile based on RiskAmerica data.

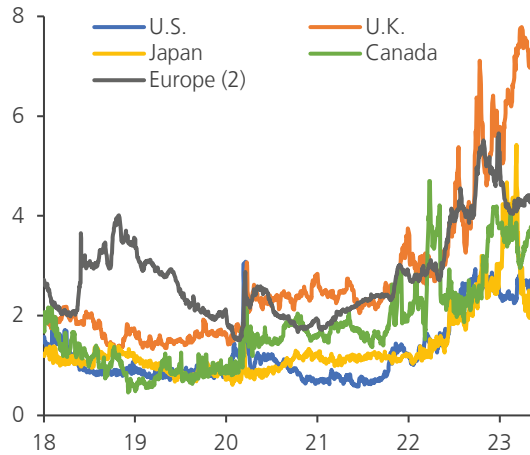
THREATS TO FINANCIAL STABILITY

A worsening of the global financial scenario could trigger episodes of high volatility, reduced foreign currency liquidity and capital outflows from emerging markets. Liquidity conditions have tightened in advanced economies in a context of monetary normalization (figure I.14). A risk scenario where monetary policy rates have to remain high for longer than expected due to persistent inflation, along with new turbulence in global banking, could trigger abrupt increases in risk premiums and deepen the capital outflows by non-resident investors from emerging countries that began in mid-April (figure I.15).

The potential deterioration of external financial conditions could have adverse effects particularly in certain sectors that have not yet fully recovered from the pandemic, such as real estate. Recent episodes of stress in U.S. banking could put pressure on risk premia in some sectors and countries where structural imbalances persist, as is the case of the real-estate market in China, which could jeopardize financial stability (Hilbers et al., 2001). On the other hand, in recent years non-bank financial institutions have gained importance in the global financial system. Therefore, it is imperative to create mechanisms that allow for the correct and timely regulation, supervision, control and resolution of these entities (GFSR, given that any disruptions in this market may constitute channels for the transmission of financial stress to the rest of the system (GFSR, April 2023)

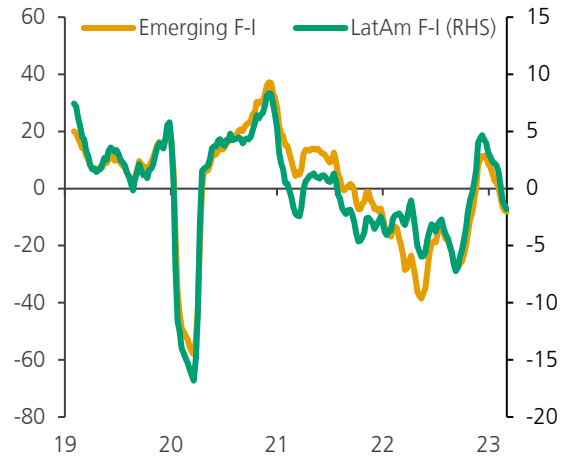


FIGURE I.14 LIQUIDITY CONDITIONS IN SOVEREIGN DEBT MARKET (1)
(basis points)



(1) Average forecast error of the yield curve for maturities equal to or greater than 1 year. Thus, when liquidity conditions are favorable (tight), the average forecast error is lower (higher). (2) Europe: simple average of France, Germany, Italy and Spain.
Source: Central Bank of Chile based on Bloomberg data.

FIGURE I.15 NON-RESIDENTS' FIXED-INCOME FLOWS (*)
(millions of dollars)



(*) Moving 12-week sum.
Source: Central Bank of Chile based on Emerging Portfolio Fund Research (EPFR) data.

A worsening of external financial conditions would find the local economy still struggling to resolve the spending imbalances of recent years. The economic adjustment process has been slower than expected, with inflation stubbornly high. In the financial scenario, the capital market has shown early signs of greater dynamism, with new bond issues. Going forward, it is crucial to prioritize and promote policies that encourage long-term savings, so that the capital market recovers its capacity as an absorber of external shocks and facilitator of long-term financing.



BOX I.1:

Recent evolution of the depth of the local financial market

The concept of market depth has been widely studied in the literature, being linked to the demand for liquidity of its agents, and to the formation of asset prices. Depth is associated with a market's capacity to absorb changes in quantities without significantly altering prices ([Kyle, 1985](#)), and with its capacity to match the buying and selling flows of its participants ([Grossman and Miller, 1988](#)). These concepts are associated with the preference for liquidity of the economy's agents ([Keynes, 1936](#)), which can be analyzed through market indicators such as transactions, price changes and trading volumes ([Black, 1971](#)).

There are various metrics to quantify the liquidity of financial markets. Among the most commonly used are the bid-ask spread, volume traded, turnover, asset price volatility and duration, to name a few. There are also other measures that are indirectly associated with market liquidity, such as the total assets of a market and the net positions of its participants. Such measures have been extensively analyzed in the literature for different types of markets ([Engle and Lange, 2001](#); [BIS, 2016](#); [Pham et al., 2020](#)).

Since the end of 2017, liquidity indicators in fixed-income and equity markets in Latin America have deteriorated, somewhat more intensely in Chile. In the local fixed-income market, there is a worsening in liquidity indicators, which has translated into an increase in interest rate levels and volatility. There has also been a decrease in net bond issuance—net of redemptions and prepayments—in the same period (table I.1)^{1/}. In the variable-income markets, the turnover ratio also decreased, reflecting a reduction in market turnover compared with 2018.

The shrinking of pension funds caused by anticipated withdrawals, also affected the availability of forex derivatives. The size of pension funds—measured as assets over GDP—of the Chilean system had a considerable drop after the withdrawals, comparable to what was the case in Peru (figure I.16). In the local derivatives market, there was a decrease in net positions (both buying and selling) in the formal foreign exchange market (figure I.17), underscoring the decrease in the buying and selling positions of pension funds (chapter I). Likewise, the total amounts of positions in the exchange rate derivatives market (sum of buying and selling positions) dropped significantly in the last two years, which would indicate lower amounts traded in this market (statistical appendix).

A more liquid capital market makes it possible to sustain long-term financing appropriately, at a lower cost, while mitigating the impact of external shocks. As has been noted in previous Reports, a deep market facilitates access to liquidity, for both businesses and individuals, supporting economic growth and job creation through increased investment and greater access to durable goods ([Céspedes and Carrière-Swallow, 2013](#)). It also reduces dependence on external financing and enables the development of the derivatives market, with the associated lower exposure to forex risk ([FSR, first half of 2022](#)). Also, a deep capital market enables the accumulation of savings in the economy, improving access to long-term financing ([FSR, second half 2021](#)). Finally, it acts as an absorption mechanism for external shocks ([Hausmann and Gavin, 1996](#)), mitigating their effects on local agents ([Berstein and Marcel, 2019](#)), a role that has dwindled in recent years ([FSR, second half 2022](#)). The latter gains importance in the current context of increased global uncertainty and greater vulnerabilities in international financial markets (chapter I).

^{1/} During April, there was an incipient recovery of bond issues in the local fixed-income market, where the main bidders were pension funds (chapter I).



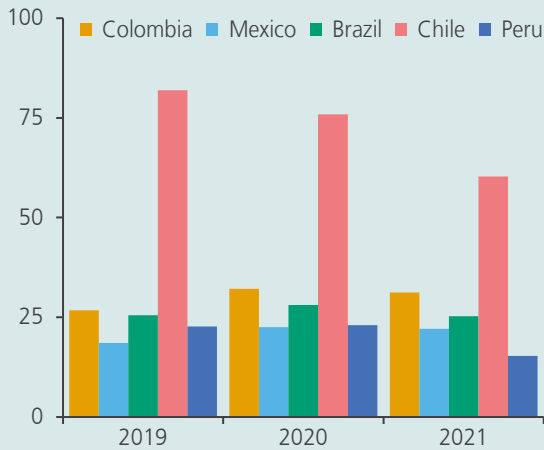
TABLE I.1 FIXED- AND VARIABLE-INCOME MARKETS' LIQUIDITY INDICATORS, 2017-2023

Indicator (1)	Chile	Peru	Brazil (2)	Colombia	Mexico
Interest rate (%)	●	●	●	●	●
Duration	●	●	●	●	●
Volatility (3)	●	●	●	●	●
Net issuances (millions of dollars)	●	●	●	●	●
Stock index turnover (4)	●	●	●	●	●

(1) Data considers information up to March 2023. Green (red) dots show improvement (worsening) of indicator between the last six months of 2017 and the most recent period (last six months). In the case of net emissions, the initial period is considered to be the six-month period between 2017.Q4 and 2018.Q1, while the final period considers the six-month period between 2022.Q2 and 2022.Q3. (2) Average weighted by the amount of sovereign and corporate rate issuance, in local inflation-indexed currencies (Chile and Brazil), at different maturities. Rate data for Brazil considers "Brasil Letras Financeiras do Tesouro" from 2018 to date. (3) Volatility uses Parkinson's method for 10-year nominal benchmark bond series for each country. (4) Moving six-month average of series standardized by GDP for respective economy.

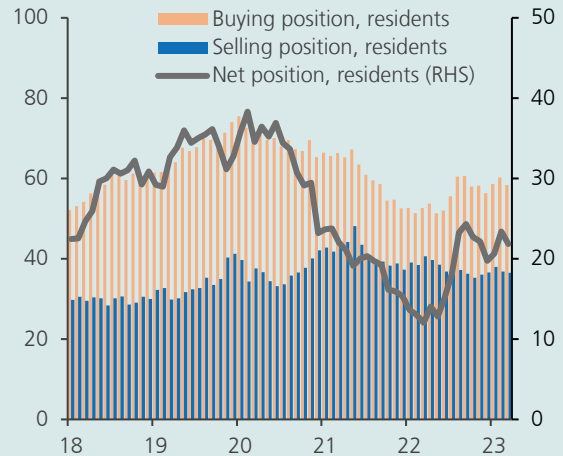
Source: Central Bank of Chile based on Bloomberg and BIS data.

FIGURE I.16 EVOLUTION OF PENSION FUND ASSETS (percent of GDP)



Source: Central Bank of Chile based on OECD data.

FIGURE I.17 DERIVATIVES POSITION IN FORMAL FOREX MARKET (billions of dollars)



Source: Central Bank of Chile based on Integrated System of Derivatives Transactions Information (SIID-TR).



II. CREDIT BORROWERS

The financial situation of firms and households has toughened in the face of a more challenging and uncertain economic scenario. Funding costs are up, lending standards are tighter and demand is weaker. The construction and real-estate sector continues to struggle, as it faces a less dynamic market and greater credit constraints, for both real-estate projects and mortgages. Households are in a more deteriorated financial position, with a significant erosion of their savings and net financial wealth. Their default indicators have risen, with greater intensity in credit card and credit line debts, and among lower-income borrowers. Despite the recent stabilization in the trajectory of sovereign debt, the fiscal room to deal with new shocks has narrowed. A sharp drop in activity and/or greater financing restrictions would affect agents' ability to honor their financial commitments. This is especially relevant for certain risk groups, already identified in previous Reports.

FIRMS

At the end of 2022, aggregate corporate indebtedness stood near its level at the onset of the Covid-19 pandemic and reported in our last FS Report. After a minor decline, mostly associated with the banking component and external loans, the aggregate debt stood at 117% of GDP (figure II.1)^{1/}. This took place in a context where local bank credit had begun decelerating in the second half of 2022 (chapter III). Meanwhile, corporate bond issuance, which remained weak towards the end of 2022, showed an incipient recovery as from April of this year (figure I.11).

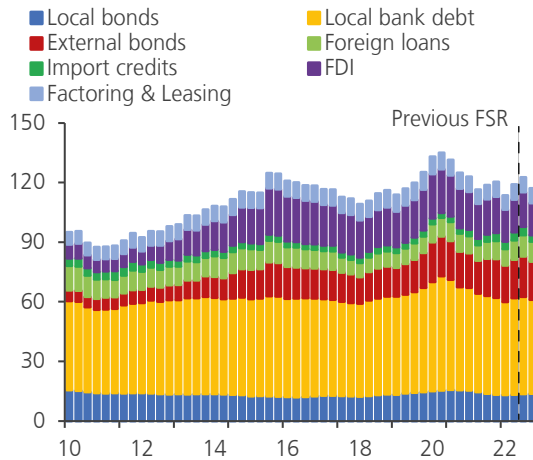
Larger companies reporting to the CMF, continued to increase their profitability, as indebtedness, interest hedging and liquidity returned to pre-pandemic levels. Return on assets reached 9.2% at the end of 2022, its highest since 2004 (figure II.2). Excluding the transportation and telecommunications sector, this indicator reaches 7.1%. Interest hedging stood at 3.9 times financial expenses. Thus, the companies that would be unable to cover twice their financial expenses represent the equivalent to 31% of the corporate sector's assets^{2/}. Indebtedness and liquidity are close to their 2019 levels (statistical appendix). Meanwhile, in an environment of high exchange rate volatility as was observed in 2022, the mismatches of this group of companies remained contained thanks to their active hedging management (statistical appendix). Regarding dividends, preliminary information as of May 2023 indicates that the paid dividends have remained above 2019 and 2020 figures, in line with those in the FSR for the first half of 2022. Finally, the situation of the private health insurance companies (isapres) has been worsening. Although the direct exposure of the financial sector is limited, the current situation deserves particular attention, given the possible indirect effects on the overall health-care sector.

^{1/} Banks are excluded from the debt calculation. This, together with certain differences in data sources and valuation methodologies, largely explains the difference with the National Accounts, which also exclude other financial companies.

^{2/} This figure is 8pp greater than that reported in the previous FSR and is above its average for the last five years (25%).

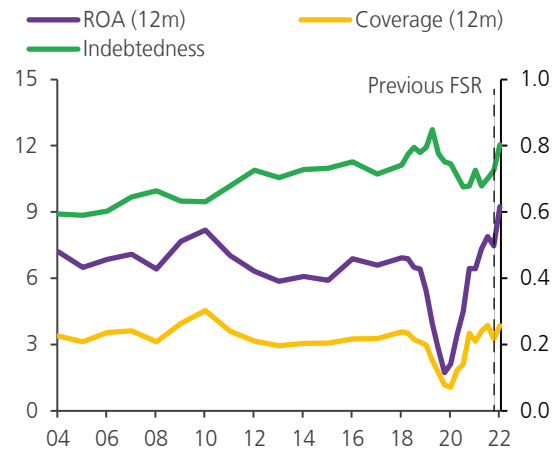


FIGURE II.1 TOTAL DEBT OF NON-BANKING FIRMS BY TYPE OF DEBT (*)
(percent of GDP)



(*) Based on firm-level information except for factoring and leasing, securitized bonds and commercial papers. Commercial university debt not included.
Source: Central Bank of Chile based on Financial Market Commission (FMC) data.

FIGURE II.2 FINANCIAL INDICATORS (*)
(percent of assets; times)



(*) Data at December of each year until 2018; thereafter, quarterly information. ROA: Twelve-month cumulative profit before financial expenses plus taxes over total assets. Coverage: Profit before taxes and financial expenses over annual financial expenses. Indebtedness: Financial debt over equity. Consolidated data. Does not include state-owned companies or those classified in the financial services and mining sectors.
Source: Central Bank of Chile based on FMC data.

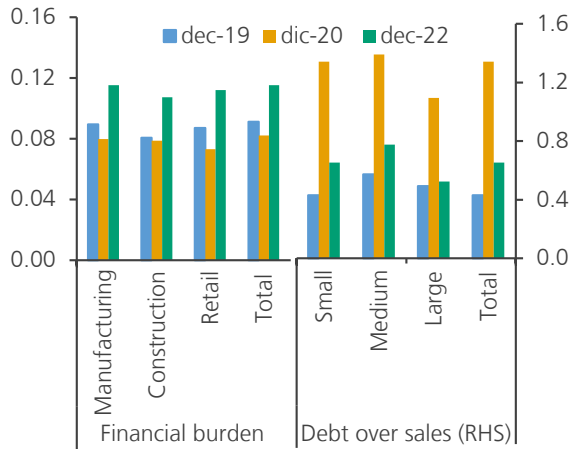
Since 2021, bank-financed companies have gradually reduced their indebtedness; however, the rise in interest rates has augmented their debt service. This adjustment in local bank debt is explained by the lower dynamism of credit, together with the repayment of Fogape loans^{3/}. The financial burden over sales continues to exceed its pre-pandemic level, particularly among SMEs, and in the retail, construction and manufacturing sectors. This is a reflection of the increased use of shorter-term financing among companies, which reflects a vulnerability in the context of higher interest rates (figure II.3). It should be noted that the financial situation has also remained tight due to the slow recovery of operating margins —revenue from product sales minus input purchase expenses— particularly among smaller firms ([Monetary Policy Report, March 2023](#)).

Bank defaults showed further increases, returning to the onset of the pandemic. The unpaid installments index rose from 1.3% of loans in June 2022 to 1.7% in March 2023. These figures, not weighted by debt, represent 8% and 10% of the total number of firms in the same period. It should be noted that, in recent months, the number of firms with the most recent defaults —up to six months— reached its peak since 2009, suggesting financial pressures in the sector that have yet to be resolved (statistical appendix). The larger defaults continue to be concentrated in companies with rescheduled loans and Fogape, as noted in previous Reports (figure II.4). Within these groups, it is worth mentioning the defaults of SMEs and large companies in the retail and construction sectors, along with providers of financial services to real-estate companies (figure II.5).

^{3/} The peak of corporate indebtedness in 2020, and its subsequent normalization in 2021, is analyzed in depth in the [March 2023 Financial Economic Series](#).

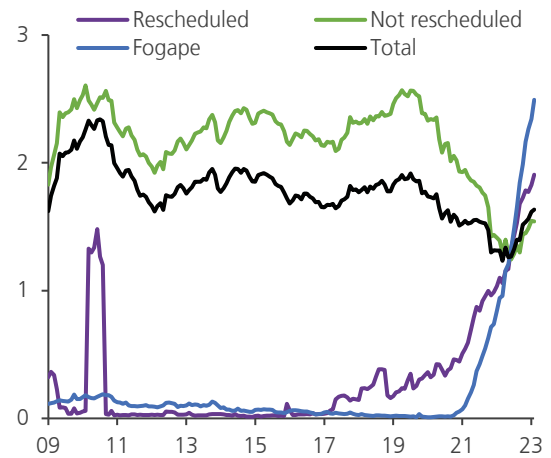


FIGURE II.3 INDEBTEDNESS AND FINANCIAL BURDEN (*)
(times monthly sales, median)



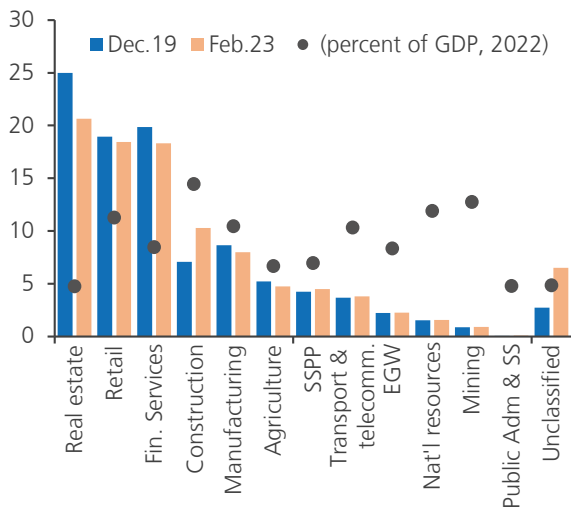
(*) Locally funded firms. Sales strata as of December 2021: Small (annual sales below 25.000UF), Medium (annual sales between 25.000 y 100.000UF) y Large (annual sales above 100.000UF). Source: Central Bank of Chile based on FMC and Internal Revenue Service (SII) data.

FIGURE II.4 UNPAID INSTALLMENT INDEX
(percent of loans of each group)



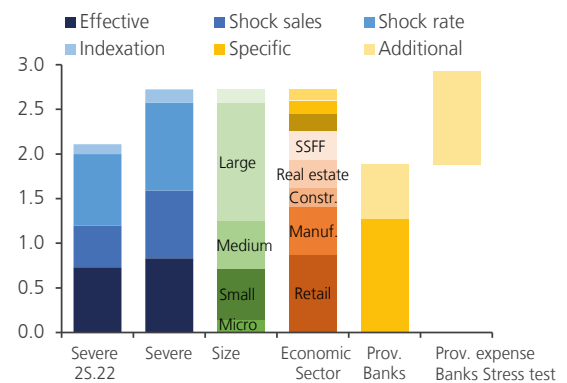
(*) Companies with local bank financing. Does not consider loans to individuals. Rescheduled and Fogape categories are not mutually exclusive. Fogape corresponds to Fogape Covid and Reactiva. Source: Central Bank of Chile based on FMC data.

FIGURE II.5 EXPOSURE AND NON-PAYMENT RATE (*)
(percent of commercial loans)



(*) Companies with local bank financing. Does not include loans to individuals. Exposure considers commercial and comex loans. Default rate calculated as the number of companies in default over the total number of companies in that sector. Source: Central Bank of Chile based on CMF and SII data.

FIGURE II.6 COMMERCIAL DEBT AT RISK (*)
(percent of GDP, 2022)



(*) Companies with local bank financing. Does not include loans to individuals. Corresponds to the amount owed by each company weighted by its individual probability of default within the next year. For more details, see the set of figures. Source: Central Bank of Chile based on CMF data.



STRESS TESTS FOR BUSINESSES^{4/}

For companies that are financed by local banks, the higher exposure to interest rate risk is one of their main vulnerabilities. Compared to our previous Report, there was an increase in the effective debt at risk —the product of debt per company and its probability of default— explained in part by the increase in materialized defaults. In a severe stress scenario, the greater impact of the interest rate shock stands out, due to increased use of short-term loans. Meanwhile, indexation risk is mitigated by lower UF-indexed debt holdings (figure II.6)^{5/}. By sectors, the test suggests that risk in a stressed scenario would continue to be concentrated in retail, manufacturing, construction and real estate. As a reference, debt at risk is lower than the sum of actual commercial provisions and the additional expense from the bank stress test, suggesting that banks have hedged credit risk in a manner that mirrors what emerges from this microdata-based exercise (chapter III)^{6/}.

THE REAL-ESTATE SECTOR

Construction and real estate continue to experience a weaker market and tougher financing constraints. As of the first quarter of 2023, the perceived demand for financing from real-estate and construction companies had weakened further. At the same time, credit approval standards for these companies had become more restrictive (Bank Lending Survey (BLS) and chapter III). At the end of 2022, operating margins continued to weaken, especially among smaller construction companies. All of the above places these businesses, especially construction companies, in a situation of greater vulnerability that has been reflected in a higher default rate.

The residential real-estate sector continues to weaken, reflecting lower demand and tighter financing conditions. The demand for mortgage loans has been perceived as being reduced for several quarters (BLS and chapter III). This situation was reflected in a significant drop in the flow of mortgage loans, which fell 45% in real annual terms in 2022, in a context of lower sales of units^{7/}. This is in addition to a lower inflow of investors, due to either changes in their portfolios (institutional investors) or lower profitability (retail investors). Therefore, there has been an increase in the available stock of finished homes, whose share of the total rose from 28% in the first quarter of 2022 to 42% in the same period of 2023 (figure II.7). As noted in previous Reports, a low share of finished housing in the available stock allows firms to better manage the effects of the sales cycle on prices. This adjustment margin has been shrinking as sales remain weak and supply has been maturing. Thus, if demand remains weak, the companies may need to make further adjustments to their prices.

^{4/} Based on [Córdova et al. \(2021\)](#). The test has a one-year horizon and assumes the occurrence of three simultaneous shocks: i) in activity, a severe scenario of falling sales, consistent with the one presented in the banking stress test (chapter III); ii) a 600 bp increase in retail interest rates and iii) a 4pp rise in inflation over a one year period.

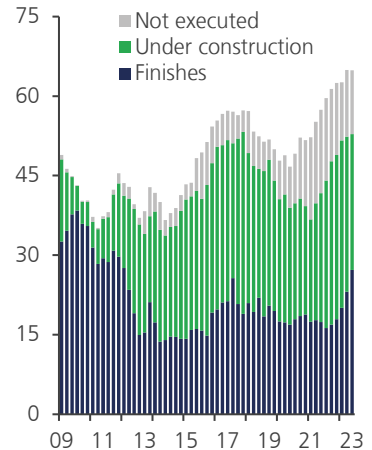
^{5/} This test considers increases in inflation that directly affect the repayment of UF-denominated debt. It does not contemplate all the additional general equilibrium effects associated with inflationary shocks.

^{6/} This comparison should be considered only as a reference and as an upper bound. Unlike the actual build-up of bank provisions, the stress test with granular firm data does not consider the associated collateral.

^{7/} Housing sales in 2022 presented a 33% drop in number of units, compared to the 2016-2019 average.

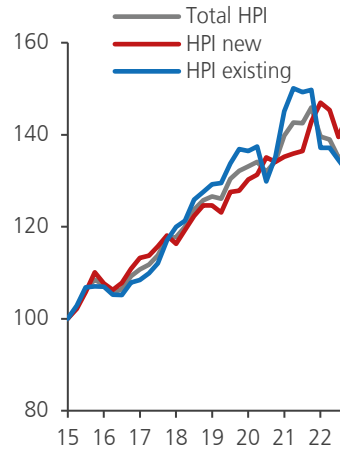


FIGURE II.7 STOCK OF NEW HOMES FOR SALE IN METROPOLITAN REGION
(thousands of units)



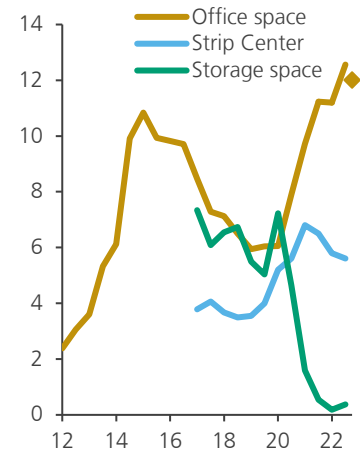
Source: Central Bank of Chile based on CChC data.

FIGURE II.8 HOUSING PRICES
(Housing price index, 2015.Q1=100)



Source: Central Bank of Chile based on SII data.

FIGURE II.9 VACANCY RATE IN NON-RESIDENTIAL RENTAL MARKET
(percent)



(*) Diamond indicates figure at 2023.Q1.
Source: Central Bank of Chile based on data from CBRE, Colliers, and GPS.

The lower dynamism has been reflected in lower prices, which have adjusted across the board, in line with the evolution of income and financial conditions. The national housing price index fell 7% annually in real terms in the fourth quarter of 2022, owing mainly to a price drop in existing homes^{8/} (figure II.8). These adjustments are consistent with movements in fundamentals, such as personal income and financing conditions. The lower dynamism has also been reflected in the rental market, where as of the first quarter of 2023, prices showed a real annual change of -10% in apartments and -6% in houses, in a context of greater availability of units for rent^{9/}.

In the non-residential market, the trend observed since the Covid outbreak continued, as the office space market faced high vacancy rates and strong demand for storage. These developments respond to the ongoing adjustment of the market, with a greater preponderance of online work and the use of storage facilities for e-commerce. As of the first quarter of this year, the vacancy rate in the office market stood at 11% to 13%, depending on the segment (A/A+, B), which is twice the values observed before the pandemic, maintaining the trend of the last three years (figure II.9)^{10/}. The high demand for storage has not diminished, as reflected in vacancy levels close to zero and a 50% real annual growth in rental prices at the end of 2022.

In short, the real-estate sector has experienced a reduced demand for several quarters, coupled with an increase in its financial burden. Factors such as the decrease in demand for housing with the corresponding buildup of inventories, rising mortgage rates, falling prices, and higher financing costs, have put pressure on the financial situation and slack of companies in the sector. Bank defaults of real-estate and construction companies have been on the rise, especially among the latter, since mid-2022, and in the forward-looking risk exercise they rank among the most affected sectors. A deepening of the deterioration could have consequences for the rest of the economy due to its multiple interconnections and propagation channels, which constitutes a risk at this moment.

^{8/} Listed sales prices at 2023.Q1 fell by 2% and 3% in real annual terms for apartments and houses, respectively.

^{9/} In the same time period, rental posting rates rose 2pp for houses and 3pp for apartments. These increases are in line with the reduction in advertised rental prices.

^{10/} Higher vacancy rates have not been fully reflected in rental prices, thus, class A/A+ office prices have remained stable since mid-2021, while class B office prices have shown declines in the last two years.



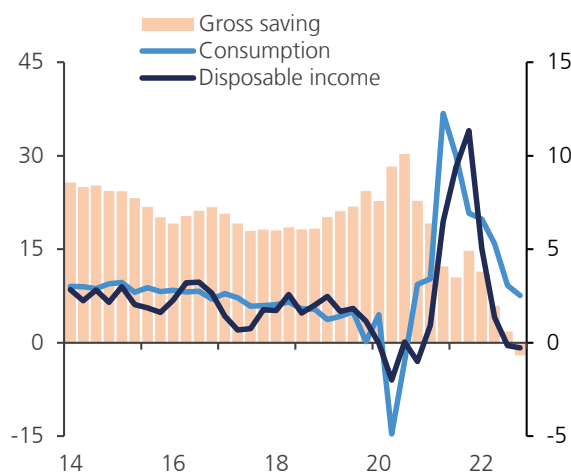
HOUSEHOLDS

In the last two years, the financial position of households has deteriorated, with a significant reduction in savings. The economic support policies implemented by the authorities during the sanitary crisis temporarily increased liquidity and boosted household consumption, eroding savings into negative territory (chapter V, figure II.10). Thus, after peaking in 2020, households' net financial wealth fell to 120% of GDP by the end of 2022, matching the levels of a decade before^{11/}.

In this context, personal loans have decreased, deepening the deceleration reported in the last FSR. As of March 2023, there was a drop in financing requests in the consumer and mortgage banking portfolios. Meanwhile, credit granting standards tightened, following the trend that began in mid-2021 (BLS and chapter III). In housing finance, this year registered low stock growth by historical standards (6.8% real annual average between 2019 and 2021 vs 1% real annual in April 2023). In this context, mixed-rate and variable-rate credit flows have stabilized their share of the debt stock since mid-2022 (chapter V, figure V.14). In the banks' consumer segment, aggregate debt fell 3% in April. This adjustment has occurred with disparity in terms of flows between products, where revolving loans have shown some recent moderation, while installment loans have remained stable (figure II.11).

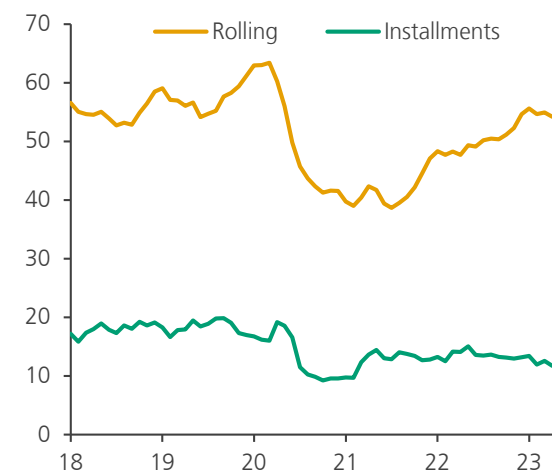
Lower-income households have seen a tightening of their financial situation. Upper-income households, meanwhile, increased their mortgage burden from 12 to 16 times their monthly income with respect to our previous Report, which is above the pre-pandemic level (figure II.12). The rest of the households matched their burdens with their debts before the pandemic, composed mainly of consumer debt. In line with their debt composition, the upper-income households' financial burden is mostly mortgage, and it has been rising since the beginning of 2021. Lower-income households, on the other hand, maintained the portfolio composition of their debt burden stable (figure II.13).

FIGURE II.10 DISPOSABLE INCOME, CONSUMPTION AND SAVING
(real annual change, percent, percent of GDP)



Source: Central Bank of Chile.

FIGURE II.11 CONSUMER CREDIT FLOW BY PRODUCT
(millions of UF, moving quarterly average)



Source: Central Bank of Chile.

^{11/}For details of the evolution of households' net financial wealth, see the 2022 National Accounts Report by Institutional Sector [here](#).



FIGURE II.12 BANK DEBT (*)
(times the monthly labor income, median)

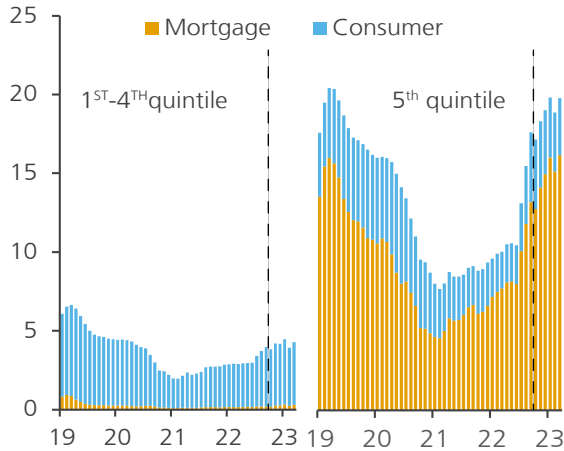
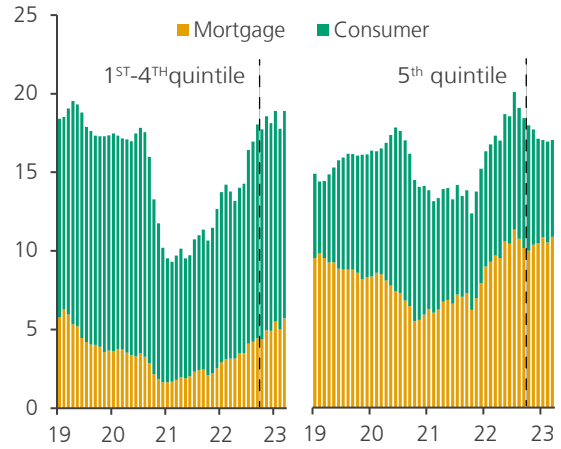
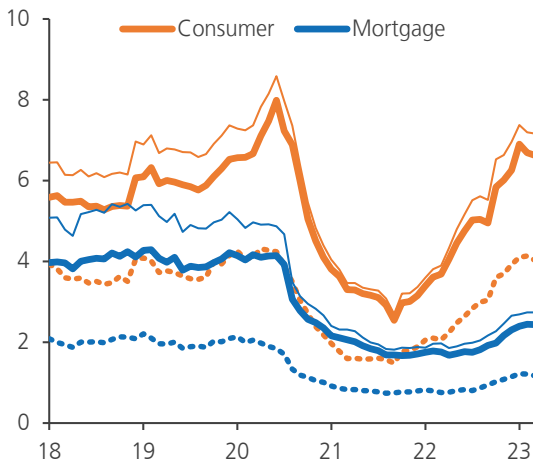


FIGURE II.13 FINANCIAL BURDEN TO INCOME RATIO (*)
(percent of monthly labor income, median)



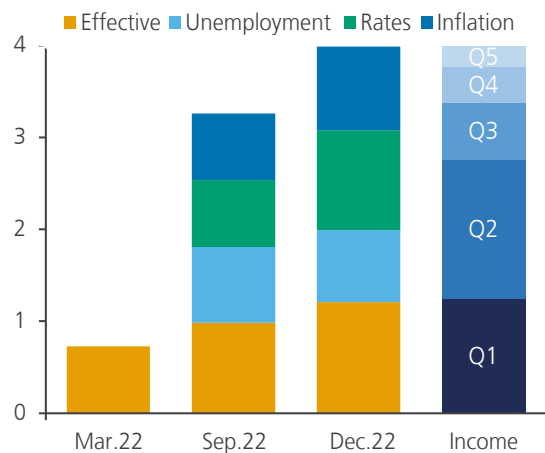
(*) Considers bank debt in consumer and mortgage loans and income of formal salaried employees. Income from pension fund withdrawals prorated individually for six months. Quintiles 1st to 4th up to clp 1,600,000, Q5 up to clp 2,800,000. Quintile 5th truncated as a result of taxable ceiling, which could bias upwards the indicators for this quintile. Source: Central Bank of Chile based on CMF and SuSeSo data.

FIGURE II.14 DEFAULT RATE (*)
(percent of number of debtors by portfolio)



(*) Dotted lines correspond to 5th quintile; thin solid line shows 1st to 4th q.; 4th q shows total. 1st to 4th q. up to clp 1,680,000, 5th q. between clp 1,680,001 and clp 2,800,000 (taxable limit). For bank debtors contributing to pension fund. Approximately 30% of debtors do not report income via pension fund contributions. Source: Central Bank of Chile based on CMF and SuSeSo data.

FIGURE II.15 DEBT AT RISK
(percent of GDP)



(*) Amount owed by each person weighted by their individual probability of default. First quintile up to clp 262,000; 2nd q. between clp 262,001 and 556,000, 3rd q. between clp 556,001 and 950,000; 4th q. between 950,001 and clp 1,680,000; 5th q. between clp 1,680,001 and 2,800,000 (taxable ceiling). Source: Central Bank of Chile based on CMF, Servel and SuSeSo data.



Non-payment increased mainly in consumer loans —mostly revolving— and with greater intensity among lower-income borrowers. Since mid-2021, the increase in default has affected every income bracket, although with greater speed lower-income debtors for both portfolios. For consumer debts, the increase has been more intense. In particular, revolving loans have increased their share of non-payment since 2022 (statistical appendix). In the mortgage portfolio, default remains below its historical average (figure II.14).

STRESS TEST FOR HOUSEHOLDS^{12/}

Households' greater exposure to interest rate risk is one of their main vulnerabilities. Since our last Report, effective debt-at-risk increased from 1% to 1.2% of GDP, in line with the higher effective default (figure II.15), while under the stress scenario, total debt-at-risk would amount to 4% of GDP^{13/}. By shocks, interest rate risk accounts for most of the increase compared to the previous Report (1.1% of GDP, +0.36pp compared to September). In this case, the increase is due to the higher exposure to rate risk associated with the intensive use of revolving credits, which are characterized by shorter terms and higher costs. In turn, unemployment and inflation risk have a lower relative impact compared to previous versions of the exercise. By quintiles, a higher share of lower-income households is observed with respect to the results of the exercise presented in the previous Report.

CENTRAL GOVERNMENT

In the last decade, higher sovereign debt entailed a significant increase in interest payments. The central government's gross debt went from 12% of GDP in 2012 to 38% of GDP by the end of 2022 (figure II.16). In recent years, fiscal efforts to mitigate the effects of the Covid pandemic resulted in a real increase in public spending of 10% in 2020 and 33% in 2021. These increases, in the current context of higher interest rates, meant a significant increase in paid interests. Thus, interest expenses in 2022 amounted to 1% of GDP, which represents an increase of 15% in real terms with respect to 2021^{14/}

The fiscal situation has improved in the last year, with surpluses in the effective and structural balance sheets, and a stabilization of debt. In 2022, the actual fiscal balance posted a surplus of 1.1% of GDP, mainly explained by a 23% drop in expenditures from the previous year. Similarly, the structural balance reached a surplus of 0.2% of GDP, as a result of a 17.4% increase in structural revenues with respect to 2021 (figure II.17). By the end of 2023, the debt would show no variation compared with the previous year, at 38% of GDP, while by 2027 it would be around 41.1% ([Public Finance Report \(IFP\), first quarter 2023](#))^{15/}

^{12/} Stress tests evaluate the potential effect of shocks in extreme, low-probability, high-impact stress scenarios. These exercises are partial in nature, as they do not model every agent's reaction and are not projections. For details, see box V.2 below and [Córdova and Toledo \(2023\)](#).

^{13/} Three shocks are proposed, in line with the severe scenario considered for the bank stress exercise (chapter III). The first one assumes a 7pp increase in the unemployment rate in one year. The second assumes a 600bp increase in consumer credit interest rates and a 200bp increase in mortgage rates, The third assumes an indexation shock of an additional 4pp in one year. Given the degree of wage indexation in Chile —close to 60% of wage earners receive some CPI adjustment (MP Reports of September 2013 and January 2008)— a partial pass-through of inflation to real wages is considered.

^{14/} Between 2012 and 2022, interest expense increased by about 0.4% of GDP.

^{15/} Despite the stabilized debt level, a change in the maturity structure was observed. Thus, while in 2021 the share of debt maturing within one year was 3.5%, by the end of 2022 it had climbed to 6.0%.



FIGURE II.16 GROSS DEBT OF CENTRAL GOVERNMENT
(percent of GDP)

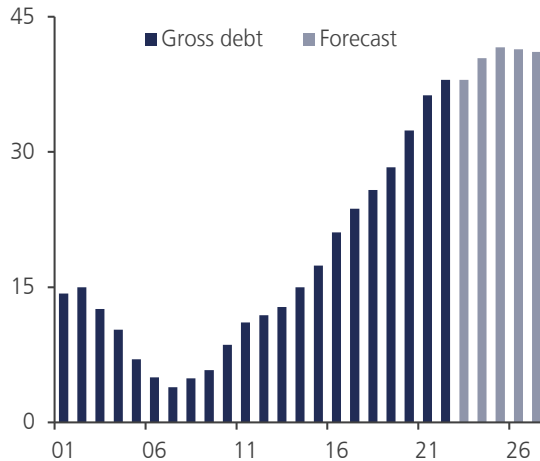
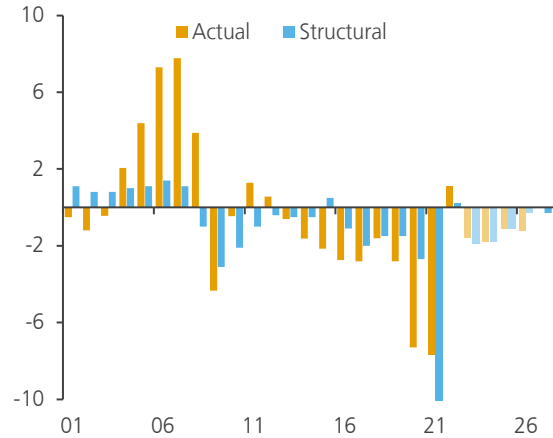


FIGURE II.17 ACTUAL AND STRUCTURAL BALANCE SHEET (*)
(percent of GDP)



(*) Light-colored bars show forecasts in [Public Finances Report for first quarter 2023](#), Dipres.
Source: Central Bank of Chile based on information from Dipres, Finance Ministry.

Maintaining fiscal consolidation is essential to mitigate future shocks without overshooting the prudent level of debt. It is crucial to maintain efforts to slow the pace of debt expansion. It should be kept in mind that a sustained increase in public debt affects investors' perception of risk, thereby increasing the cost of financing for local households and companies. At the same time, it is important to have fiscal space that makes it possible to implement measures to mitigate future shocks, without exceeding the defined prudent level of obligations^{16/}.

There are risk elements that could cause additional stress on public finances in the years ahead. Although official projections suggest that debt will not exceed the prudent level in the next few years, there are certain elements to be considered^{17/}. Regarding the financing of committed permanent expenditures, future increases are difficult to anticipate, or otherwise they might not be accompanied by a proportional increase in revenues. On the other hand, other capital requirements could influence the trajectory of public debt; for example, the capitalization of state-owned companies, payment of Recognition Bonds, purchase of the student loans (CAE) portfolio and contributions to the Guarantee Fund for Small Entrepreneurs ([CFA, April 2023](#)).

^{16/} Within the framework of Law 20.128 (On Fiscal Responsibility) and through Decree 755, the current Administration establishes the basis for fiscal policy for the 2022-2026 period. In this context, a prudent debt level of 45% of GDP is determined.

^{17/} The [CFA report of April 2023](#) proposes various scenarios in which the prudent debt level could be exceeded: (i) a structural balance with a permanent and high deficit, (ii) permanent expenditure commitments but with lower effective permanent collection, (iii) higher pension expenditure pressures (real adjustment of benefits and guaranteed universal pension parameters), (iv) permanent expenditure commitment charged to transitory lithium revenues, (v) slowdown in the trend growth of the economy and (vi) activation of escape clause (fiscal impulse) in the face of a major exogenous and transitory situation, without the existence of a proper correction and fiscal convergence mechanism.



BOX II.1:

Gender differences in Chilean families' borrowing

Gender gaps in indebtedness vary depending on the type of debt considered and whether they are measured at the individual or household level. At the household level, women have similar indebtedness to men, even though they have a smaller fraction of household income. According to the Indebtedness Report 2022, based on bank administrative data, women have less than half the debt of men and have a lower financial burden and a lower default rate (CMF, 2022a). Using information from the Household Financial Survey (EFH), it is observed that, on average and at the household level, women are responsible for less than half of total debt (45% of total debt, 37% of mortgage debt and 46% of consumer debt). However, their income represents only one-third of the household total (figure II.18). The differences with respect to bank data are explained by the fact that the fraction of non-bank debt held by women is relatively higher than bank debt (50% and 36%, respectively). Thus, a comprehensive look at household indebtedness is especially relevant, since women use more non-bank debt and make up two-thirds of the debtors of retail lenders (figure II.18) (CMF, 2022b).

On the other hand, in line with the observed individual-level bank debt, women present a lower rate of default. Default (delinquency of three months or more) is lower than that of men in all categories (total, mortgage, consumer, bank or non-bank) (figure II.19)^{1/}. The literature defines household solidarity as the existence of implicit transfers between higher and lower income members of the family that allow individual financial commitments to be met (Browning et al., 2014). Thus, in a household with perfect solidarity, income and the level of individual indebtedness are not relevant for the default rate because debts are paid jointly. However, the results obtained from an empirical model of default at the household level show that solidarity is imperfect in Chile, suggesting that women are more responsible in the repayment of their individual debts. This confirms that it is important to analyze indebtedness at both the individual and the household level (Cortina and Madeira, 2023).

FIGURE II.18 FRACTION OF INCOME RECEIVED AND DEBT BORNE BY WOMEN IN CHILEAN HOUSEHOLDS (*) (percent)

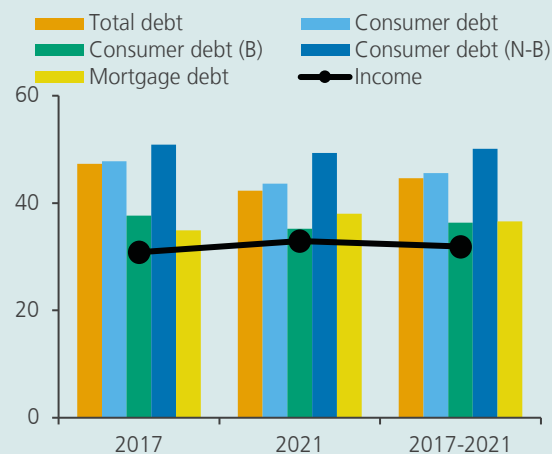
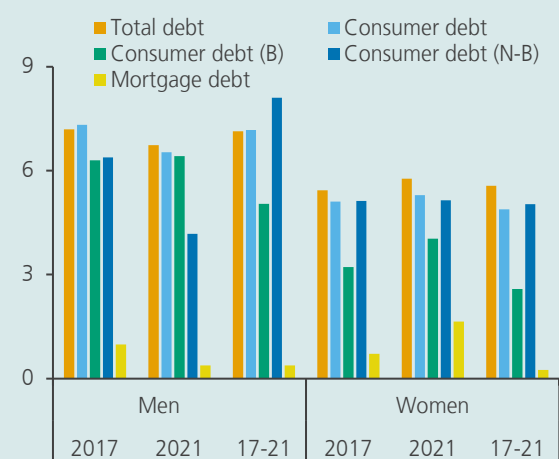


FIGURE II.19 NON-PAYMENT OF THREE MONTHS OR MORE, BY GENDER (*) (percent)



(*) Values represent the average obtained in indebted households with adult members of both genders in the couple. Source: Central Bank of Chile based on Housholds Financial Survey (EFH) 2017-2021.

^{1/} However, women have a higher default rate with a delay of one month (or more) for consumer debt, especially non-bank consumer debt. (Cortina and Madeira, 2023).



III. LENDERS

Bank credit has lost dynamism, in line with the adjustment of the economy, mainly due to decreasing demand and greater supply-side restrictions in most segments. Credit portfolios have seen increases in non-payment, especially in bank and non-bank consumer loans, which are now close to pre-pandemic levels. The banking system's liquidity and capital position is sufficient to face stress scenarios. Characteristically, the Chilean banking system operates with a traditional business model and diversified funding sources, with a focus on risk management and a robust regulatory and supervisory framework. In the near future, the banks face maturing obligations and greater capital requirements, for which it should continue to strengthen its liquidity and solvency.

THE LENDERS' SITUATION

Consistent with the adjustment of the economy, bank credit has become more sluggish, both because demand continues to weaken and supply conditions have tightened in some segments. Loans fell in all segments in annual terms, except in the mortgage portfolio (figure III.1). According to the Bank Lending Survey (BLS), in the commercial portfolio the contraction persists for both large-scale and small firms. This dynamic is largely explained by reduced investment needs. In turn, for the bigger companies, conditions remain tight due to a more adverse economic environment (figure III.2 and statistical appendix). Consumer credit contracted, but with heterogeneity across products. Since the end of 2022, there has been a stabilization in the flow of installment credits and a greater use of revolving loans—in line with high and persistent aggregate household consumption—which has been declining more recently (figure II.11 and statistical appendix). Meanwhile, housing loans recorded the lowest annual growth rates in recorded history, even though credit conditions—such as average term—have tended to become more flexible after a tightening towards the end of 2021. However, demand remains weak due to higher costs and a perception of an unfavorable income and employment environment for borrowers (BLS).



Credit risk maintains an upward trend in the consumer and commercial segments, in view of which banks have accumulated and used provisions created during the pandemic to face the possibility of these conditions becoming more profound. Consumer portfolio delinquency, despite some moderation in April, has maintained its upward trend, remaining somewhat above pre-Covid levels, especially in credit card debts, which show significant deterioration (statistical appendix). With this in mind, banks have accumulated specific provisions—at historically high levels—and have continued to build up the stock of additional provisions, in preparation for a potential increase in defaults (statistical appendix). In turn, the commercial portfolio under individual evaluation maintains a high share of loans with lower risk classification, while the group portfolio in default has grown since August of last year. This has lifted the stock of specific provisions to levels exceeding their historical averages, although additional provisions have stabilized since late last year (statistical appendix).

Consumer loans from non-bank credit providers have decelerated, with the exception of the clearing houses (CCAF) and the savings and loans cooperatives (S&LC). At the end of 2022, non-bank consumer loans were on a downward trend, especially in the case of the Business Support Entities and motor vehicle loans, while the clearing houses and S&LCs showed a slight upward reversal in the same period (statistical appendix). As for credit risk, the deterioration of the retail financial and vehicle finance portfolios has persisted (statistical appendix).

The banks have continued to modify their balance sheet structure by shortening the maturity of their assets and moderating the reduction of the duration of their liabilities. The change in composition from demand deposits to time deposits, given the more attractive interest rates, has contained the reduction in the average term of liabilities (figure III.3). Likewise, the decrease in the duration of assets has been the result of shorter-term loans and greater holdings of financial instruments that generally have a shorter duration. This has reduced the maturity mismatch gap and the banks' exposure to interest rate variations accordingly.

Bank profitability remains high from a historical perspective but has tended to moderate more recently due to lower readjustment margins and greater operational support expenses. The readjustment margin—tied to inflation—contributed to increase the banks' profitability in 2022, to its highest in the last eight years (figure III.4). Said margin has narrowed since late last year, in line with the lower inflation numbers^{1/}. In addition, the increase in operating expenses and credit risk provisions have contributed to reducing the banks' profits, which have been partly offset by an increase in interest-rate spread in the same period^{2/}.

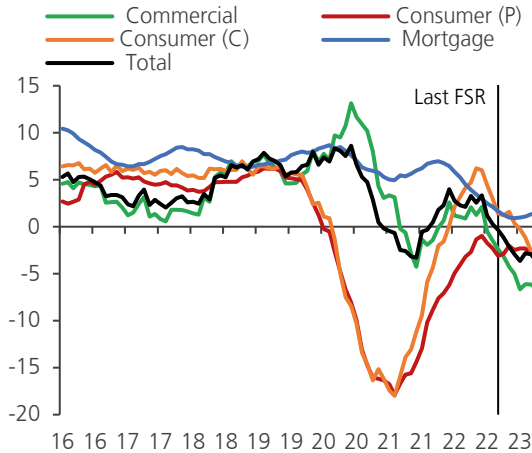
Although banks have liquidity and capital buffers, they will soon face the expiration of the FCIC and the entry into force of new regulatory requirements as part of the convergence to Basel III. In March and July 2024, the banks will have to face the end of the FCIC for amounts representing around 5.4% and 3.2% of their total liabilities, respectively. In this context, the capital adequacy ratio (CAR) remains stable since the previous Report, even though a fraction of the capital deductions including, among others, deferred taxes and intangibles, began to be imputed in December of last year.

^{1/} Inflation has had a transitory, but dominant, effect on the higher profitability. This is so because banks have more assets than liabilities in UFs, so a significant increase in inflation generates profits. Thus, this recovery in banking profitability has moderated with the recent declines in inflation.

^{2/} The interest rate spread has remained below its pre-Covid average, as a result of an increase in term deposit rates due to benchmark rate adjustments. Lending rates, meanwhile, have not risen as much due to lower demand for credit.

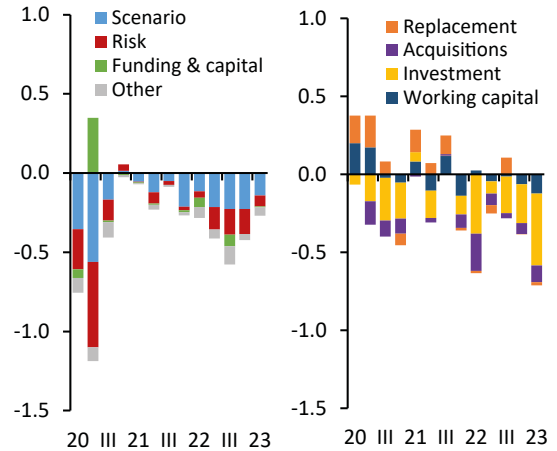


FIGURE III.1 LENDING GROWTH (*)
(real annual change, percent)



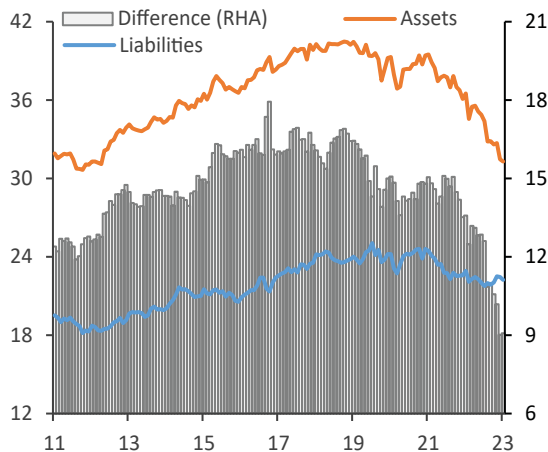
(*) C: consolidated, P: personal. Based on individual financial statements. Vertical line denotes statistical closing of previous FS Report. Figures at April based on regulatory files. Consolidated local consumer credit includes loans by Business Support Entities (“Sociedades de Apoyo al Giro”).
Source: Central Bank of Chile based on FMC data.

FIGURE III.2 FACTORS IN LARGE-SCALE COMPANIES’ CREDIT STANDARDS (*)
(index)



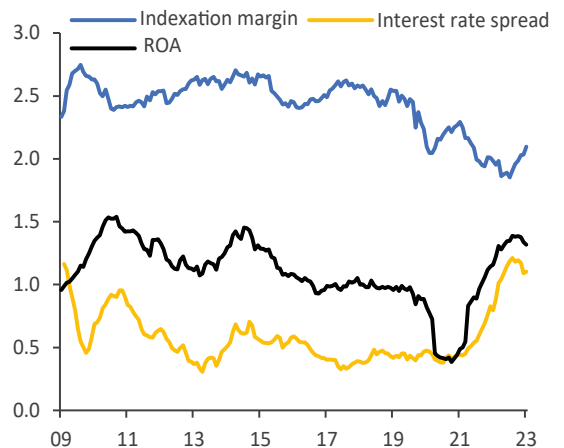
(*) The index corresponds to the net value of responses weighted by respective bank’s share in the commercial portfolio. Negative values denote greater restrictions or weakness. Other includes degree of competition by other banks or non-bank institutions, regulatory changes and other factors.
Source: Central Bank of Chile.

FIGURE III.3 BALANCE SHEET DURATION
(months)



Source: Central Bank of Chile based on FMC data.

FIGURE III.4 MAIN COMPONENTS OF ASSET PROFITABILITY
(percent of assets)



Source: Central Bank of Chile based on FMC data.



EVALUATION STRESS SCENARIOS^{3/}

The stress tests applied to banks indicate that they are on a good standing to face the impact of credit and market risks in stress scenarios. This tool uses December 2022 accounting data for the banking system and considers an adverse and a severe stress scenario (figure III.5 and statistical appendix). The adverse scenario assumes a slow and persistent deceleration^{4/}, while the severe scenario represents an abrupt contraction of activity due to lower domestic demand—driven by the increase in funding costs—and a drop in investment. Also, in both scenarios, the drops in external demand and deteriorated financial conditions entail an increase in interest rates^{5/} and in exchange rate volatility^{6/}. Also, due to the policies applied throughout the pandemic, and in view of a materialization of the underlying credit risk, the increase in additional provisions is factored in, treating them as specific^{7/} and the adjustments for loans with government guarantees are reversed, considering them as a traditional commercial portfolio in terms of their provisions and their incidence on risk-weighted assets.

The results show that credit risk remains the main source of banking system vulnerability. The current exercise estimates a credit risk equivalent to 19.5% of the system's capital under the severe scenario, i.e., a decrease of 5pp in relation to the previous exercise (figure III.6). Meanwhile, credit risk in the adverse scenario would total 16.3% of capital, which is slightly lower than that presented in the last FSR. This is explained by lower exposure to the consumer and commercial portfolios, because of their low dynamism. However, a persistent contraction in loans could have a negative impact on economic activity and, consequently, on the banking sector at large.

Market risk remains limited despite external turbulence. The lower maturity mismatch, as a result of changes in the liability structure that affected the duration of assets (figure III.3), has reduced the interest rate risk exposure of the banking book. Likewise, asset valuation risk has remained low since the previous Report (box III.1). In addition, the banks would have sufficient levels of liquidity, well above regulatory requirements, and a low exposure to exchange rate risk.

Under the stressed scenario, bank solvency returns to levels similar to pre-pandemic ones, leaving the system with adequate capital buffers to withstand the stress scenario. The initial position for the fiscal year is an improvement over the previous version. The CAR rises from 14.6% to 15.5%^{8/}, while the ROE reaches 19.6%, allowing banks to absorb the risks considered (figure III.7). The proportion of banks with negative profitability in the severe stress scenario is somewhat lower than it was in the previous exercise, at 51% of the system's core capital (figure III.8)^{9/}. Finally, the impact of the severe scenario on the difference between initial and final capital would decrease from 3.7pp to 2.7pp. Thus, capital buffers are increased with respect to the previous year (figure III.8). Nevertheless, banks face the maturity of financial obligations and the implementation of Basel III for capital, through a process of capital discounts and an increase in regulatory limits towards full convergence in 2025.

^{3/} Based on the methodology described in the [FSR for the second half of 2013](#) and on [Martínez et al. \(2017\)](#). Both the analysis and its results are regularly reported to the FMC. Furthermore, given their nature, they should not be considered as forecasting exercises.

^{4/} The adverse scenario is based on the 5th percentile of the projections in the [March 2023 Monetary Policy Report](#).

^{5/} Assumes a 300bp increase for the short-term interest rate and 100bp for the long-term interest rate in all denominations.

^{6/} It is calibrated based on the historical variations of the peso since 2000. That is, 20% for credit risk computation and 16% for market risks.

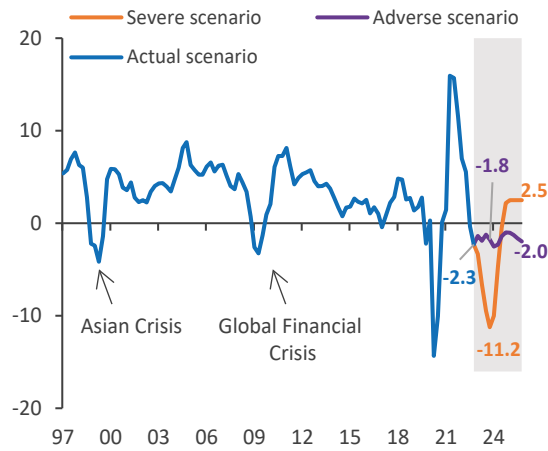
^{7/} Although the transformation of additional provisions to specific provisions has no net effect on the expense, they are deducted as part of the banks' effective net worth.

^{8/} Part of the increase in the initial CAR is explained by the slowdown in loans, which has an effect on risk-weighted assets, the capitalization of Banco Estado for US\$500 million, and the issuance of subordinated bonds by other institutions.

^{9/} In the adverse stress scenario, the banks that would exhibit negative returns represent about 33% of total core capital, marginally less than the previous 36%.

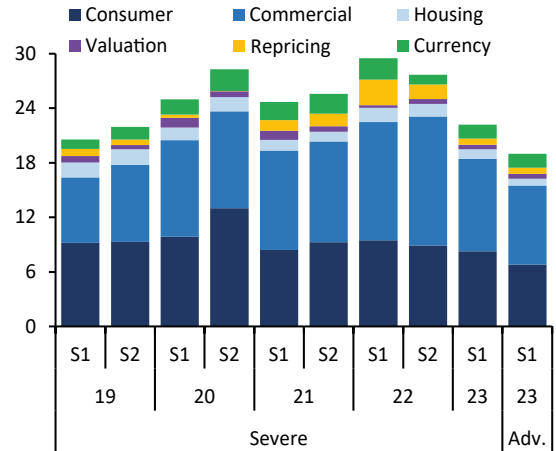


FIGURE III.5 ANNUAL GDP GROWTH SCENARIOS (*)
(quarterly data, percent)



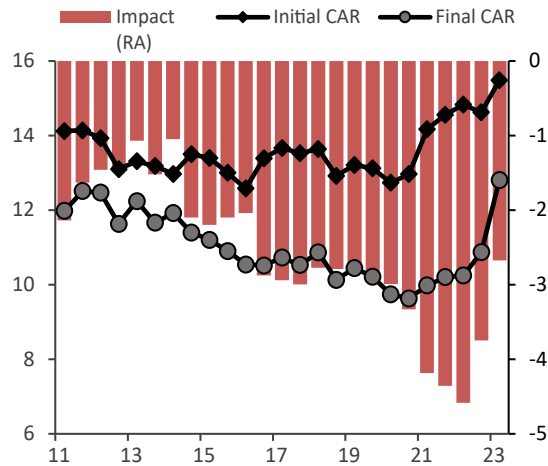
(*) Seasonally-adjusted data. Shaded area represents exercise window.
Source: Central Bank of Chile.

FIGURE III.6 SYSTEM'S CREDIT AND MARKET RISKS
(percent of core capital)



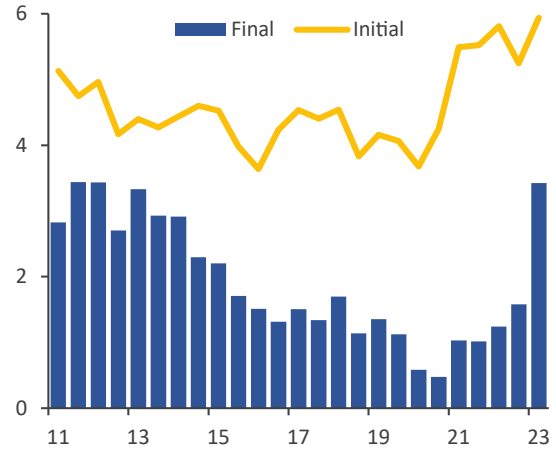
Source: Central Bank of Chile.

FIGURE III.7 IMPACT OF SEVERE STRESS SCENARIO
(percent of risk-weighted assets)



(*) Considers invested profits.
Source: Central Bank of Chile based on FMC data.

FIGURE III.8 CAPITAL BUFFERS IN A SEVERE STRESS SCENARIO (*)
(percent of risk-weighted assets)



(*) Effective net worth in excess of regulatory minimum. Considers particular limits of each bank. As from 2021, business support entities for consumption are considered.
Source: Central Bank of Chile based on FMC data.



RISK FACTORS

The deterioration of the macroeconomic scenario would impact the repayment capacity of households and businesses, thus further deteriorating the loan portfolio. The weak investment figures have reduced the funding needs of companies and also their capacity to generate income, which could affect the fulfillment of their obligations. As for households, the increase in their exposure to interest rate risk due to the greater use of revolving credit makes them more vulnerable in the face of tighter credit conditions. Meanwhile, a slower-than-expected adjustment in consumption or a rise in the unemployment rate would squeeze households' financial position.

While the bank's diversified funding structure mitigates market risk, a worsened macroeconomic scenario could further impair financial conditions, thus limiting the banks' options to access favorable funding sources. The banks have been able to finance themselves through bond issuance in the local market, so it is critical to avoid initiatives that reduce the size of the capital market, so that this source of funding is not affected (box I.1). Capital buffers and active liquidity management by banks mitigate the potential impact of stressed scenarios. However, international financial disruptions could compromise the liquidity position in foreign currency, so banks are required to maintain their active liquidity management—with indicators well above regulatory limits—and to maintain diversified sources of funds.

There are still risks of more frequent cyber-attacks in a context of geopolitical fragmentation and digitalization, as well as specific events related to process management. Between 2019 and 2021, the amount involved in fund transfers and other online payments by individuals rose from 49% to 61% of GDP ([Payment Systems Report, July 2022](#)). This growing trend emphasizes the importance of investing in cybersecurity to strengthen the different platforms and thus mitigate major events exposed to operating risk.

COUNTER-CYCLICAL CAPITAL BUFFER

The Board has activated the CCyB as a precautionary measure in the face of heightened external uncertainty. The CCyB is a macroprudential requirement aimed at boosting the economy's resilience to severe stress scenarios resulting from systemic risks. The Board estimates that, considering the current level of capitalization, the banks' available buffers, the CCyB level and the defined term to build it, its activation will have limited and transitory effects on the evolution of credit. In addition, the implementation of the CCyB is framed in a context where it is necessary for every participant in the economy to continue recomposing their capacities to address possible adverse events.



BOX III.1:

Market Risk in Banks' Stress Tests

The recent banking problems in the United States underscore the importance of permanent evaluation of the potential risks to which banks are exposed and the impact of their materialization on the overall banking system. In several developed economies, monetary tightening after a long period of low rates eroded the value of banks' fixed-income investments, causing significant losses for those banks with high exposure to financial instruments. This change in the phase of the business cycle triggered greater-than-expected deposit withdrawals. Faced with this abrupt movement, banks had to liquidate assets that were unhedged and not valued at market price, thus deepening their losses. The prevention of this situation was limited by the partial application of Basel III standards in the U.S. for these institutions, which were not subject to interest rate risk requirements.

Locally, the Central Bank of Chile and the FMC do permanent and coordinated follow-up and analysis of the banking system's situation. Stress tests constitute one of the main tools that the Bank has at hand to assess the capacity of the banking sector to face the materialization of extreme, but plausible, macroeconomic shocks ([Jara et al., 2007](#); [Alfaro and Sagner, 2011](#); [Martínez et al., 2017](#)). The stressed scenarios used in these exercises are characterized by an increase in both credit risk —through greater provisioning expenses— and market risk due to exchange rate volatility (currency risk) and a sudden increase in discount rates (interest rate risk), which affects the value of the banks' portfolios (chapter III). These results are communicated and discussed jointly with the FMC staff, where emerging risks not captured by the tool are also evaluated.

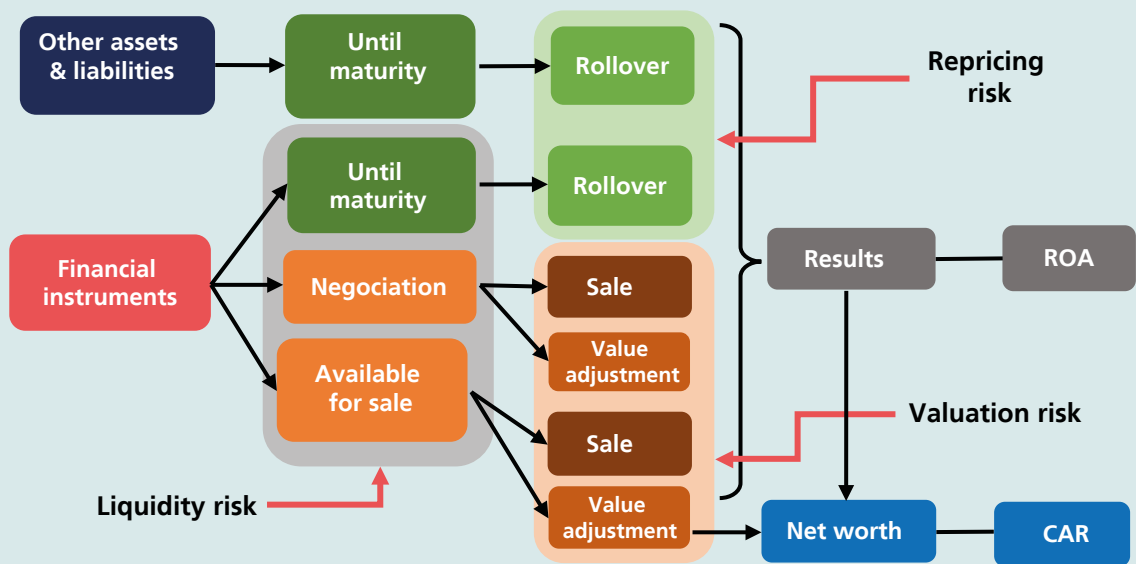
In these tests, interest rate risk impacts the bank's balance sheet under stress scenarios according to the financial instruments' ratings, based on their functional purpose. Depending on each bank's business model, the financial instruments in its portfolios may be classified as negotiation, available-for-sale or held-to-maturity (figure III.1). Negotiation instruments and available-for-sale instruments are recorded in the negotiation book where they are subject to changes in their market value; therefore, an increase in interest rates reduces the present value of such assets (valuation risk). This loss causes a decrease in net worth, thus affecting the solvency of the banking system^{1/}. In turn, maturity instruments, which include the loan portfolio, are recorded in the banking book. An increase in the term structure of forward rates has a negative impact on the intermediation margin, because assets and liabilities must be rolled over at higher rates. Since the latter typically have a shorter duration, this generates a higher cost increase (repricing risk), which reduces profitability. According to March 2023 data, the proportion of financial instruments classified as held-to-maturity accounts for 3.4% of the system's total assets, so the impact of repricing risk remains limited and is smaller in magnitude than the impact of credit risk (chapter III). The stress test also considers the effect of interest rate risks on banks' liquidity. Specifically, changes in the liquidity hedge ratio are analyzed in the face of a loss in the value of high quality liquid assets due to an increase in interest rates, together with an increase in estimated net outflows in a stress scenario over the next 30 days. The results do not suggest liquidity shortages in our banking system.

^{1/}This decrease in net worth can be direct, through the sale of instruments classified for such purposes (available-for-sale), or indirect, through the proceeds from negotiable instruments.



The stress tests show that the bank has adequate solvency and liquidity levels to deal with stressed interest rate scenarios (chapter III). The banks operate under a traditional business model, focused on granting credit on a diversified funding base and an adequate management of maturity mismatches, which reduces their exposure to interest rate volatility. In addition, the current regulatory framework for capital and liquidity considers Basel III standards and includes all banks (chapter IV). Thus, during the interest rate hike cycle, banks have acknowledged and absorbed the effects of changes in the valuation of instruments through several channels.

FIGURE III.1 INTEREST RATE RISK (*)



(*) Diagram of the effects of interest rate shocks considered in the banking stress tests. Green boxes represent the banking book; yellow boxes represent trading book.
Source: Central Bank of Chile.



IV. FINANCIAL POLICY DEVELOPMENTS

This chapter reviews the rationale and objectives considered by the Board of the Central Bank of Chile (BCCh) in its decision to activate the Countercyclical Capital Buffer (CCyB) at the Financial Policy Meeting of the first half of the year. As regards the recent disruptions in international banking, it reports how they brought to light the importance of having appropriate regulatory and supervisory tools. In this context, it is worth mentioning the progress made to strengthen the regulatory and supervisory framework available in Chile. The most relevant components of the Basel III standards on solvency —incorporated in the General Banking Law (Ley General de Bancos, LGB)— and liquidity are currently in full force. For its part, the BCCh continues to pursue its financial policy initiatives, including in its agenda new elements aimed at strengthening the financial system. These include the updating of the regulation on Payment Card Issuers and Operators, the implementation of the recently approved Fintec Law and the enabling of self-securitization schemes. Also noteworthy is the progress made in legislative bills relevant to financial stability, such as the Resilience bill and the Consolidated Debt Registry bill.

DECISION TO ACTIVATE THE COUNTERCYCLICAL CAPITAL BUFFER IN CHILE

At its Financial Policy Meeting of the first half of 2023, the Board of the Central Bank of Chile agreed to activate the Countercyclical Capital Buffer, by establishing a capital charge of 0.5% of risk-weighted assets (RWA) to the banking system, which will be enforceable within one year.

The CCyB is one of the macroprudential policy instruments in Chile whose implementation corresponds to the BCCh. Macroprudential policy constitutes one of the fundamental pillars that contribute to the BCCh's objective of safeguarding financial stability, for which there are tools that are classified according to the specific scope of their application as broad-based, sectoral, liquidity, exchange rate, and structural risk requirements ([IMF, 2018](#))^{1/}. In Chile, the reform to the General Banking Law of 2019 and later implemented regulations allowed adherence to Basel III international standards in matters of bank solvency, through capital requirements and risk hedging. According to the current legal framework, the Financial Markets Commission (FMC) is responsible for capital structure requirements (broad-based), provisions (sectoral), and systemic charge (structural risk) tools, while the application of liquidity and foreign exchange tools, as well as the definition of the CCyB (broad-based tool), are the responsibility of the BCCh, whose application is done in accordance with the provisions in the Document on Countercyclical Capital Buffer Implementation ([BCCh, 2021](#)).

^{1/} For details, see chapter IV “Macroprudential Policy: International Experience and Developments in Chile” in [Financial Stability Report, first half 2020](#).



Specifically, the CCyB is one of the tools available to the BCCh to conduct its financial policy, and is applied with the purpose of strengthening the banking system. The BCCh's objective in guiding its CCyB decisions is to prevent the banks from amplifying the effects of an adverse event, restricting their credit provision when financing becomes most necessary. The application of this requirement follows a preventive strategy that results from a forward-looking assessment of the vulnerabilities and risks of the financial system ([BCCh, 2021](#)). This is in line with the approach adopted by other jurisdictions in the world (box IV.1). To achieve this objective, CCyB increases are defined when the business cycle is in a normal phase, or when there is an accumulation of higher risks, and the banks have sufficient capacity to build it up, in a context in which the probability of future disruptions is increased. An activation of the CCyB, consistent with this diagnosis, will allow for an additional capital requirement (established as a buffer or capital cushion) which, in the event of future stress events, can be released totally or partially. Sound CCyB management contributes to stabilizing the supply of banking services, including credit, throughout the business cycle and in the face of severe stress events (box IV.1).

The decision regarding the CCyB is the result of a process that goes through several stages of analysis and discussion, and is carried out in coordination with the FMC. Financial policy meetings are held at least twice a year, in the same cycle in which Financial Stability Reports are published. To ensure continuous communication and collaboration with the FMC, technical meetings with the supervisor's staff are held during the preparation process. In addition, once the BCCh decides to activate the CCyB, it needs to submit a preliminary favorable report to the FMC regarding its level and timeframe for implementation. The FMC is responsible for monitoring and overseeing compliance with the additional core capital requirement in whenever the CCyB is activated.

The analytical framework for determining the activation of the countercyclical capital buffer in Chile incorporates elements that are also found in the conceptual frameworks of other jurisdictions. To make the decision, the BCCh permanently analyzes a broad set of macro- and micro- financial background information, which serves as input for preparing the financial policy meetings. The credit cycle and its determinants are studied; a series of financial indicators are analyzed to identify vulnerabilities and risks, as well as to characterize financial and macroeconomic conditions, in addition to considering the analysis of bank stress tests and macro-financial models. In those jurisdictions that have begun to adopt the CCyB approach as a precautionary measure, in addition to the above, normal or standard conditions are defined in which it is possible to accumulate this capital buffer to enhance the resilience of the financial system, to release it when struck by severe financial stress conditions. Following this logic, the buffer can be accumulated in periods of credit contraction.

The Board just activated the CCyB as a precautionary measure in view of the greater external uncertainty. The global context presents tighter financial conditions and more uncertainty than usual, so the main risks come from abroad (chapter I). Locally, the adjustment of macroeconomic imbalances continues. Private consumption has continued to adjust downward, fiscal indebtedness has stabilized and the current-account deficit is gradually moderating. In the fixed-income and foreign exchange markets, risk premiums have declined. The analysis of the various financial indicators does not suggest the existence of vulnerabilities that would amplify systemic risks. The attention remains focused on the retail, construction and real-estate sectors. Among households, risk remains concentrated in lower-income ones, which have increased their financial burden through greater use of credit cards and lines of credit. As for credit defaults, there was a notable increase in both households and companies, bringing them back to levels comparable to those of the pre-Covid period.



Although the local financial system has been able to appropriately face the international scenario of higher risk so far, the Board considers it essential to enhance its resilience. A worsening of the international scenario, apart from increasing volatility and risk premiums, could trigger capital outflows from emerging economies, reducing the availability of external financing ([FS Report, second half 2022](#)), which could also affect the relevant demand for Chilean exports ([MP Report, March 2023](#)).

The stress tests to the banking system are evidence of the banks' solvency (chapter III). The banks have a sufficient level of provisions and capital to deal with a severe stress scenario. Notwithstanding the above, the system is in the process of converging to Basel III.

The Board estimates that, considering the current level of capitalization, the bank's available buffers, the level of the CCyB and the defined term to complete it, its activation will only have limited and transitory effects on the evolution of credit^{2/}. In addition, the implementation of the CCyB is framed in a context where it is necessary for all the economy's agents to continue to rebuild their capacities to withstand possible adverse events.

The benefits of having the CCyB activated are estimated to more than outweigh the costs that this measure could entail. These elements have been weighted in the decision making process in terms of the timing and graduality with which the measure will be implemented. Banks have capital levels that allow them to absorb the CCyB charge, without necessarily having to build up additional capital in the short term, which in part supports the estimate that the effects on the supply of credit would be limited. Moreover, the effect on credit is mitigated by the anticipated announcement of the new charge, which becomes due within a year and the banks can partially accommodate it by using their existing capital. Evidence suggests that banks face new capital requirements by partially using their available buffers against regulatory limits, although in the medium term they tend to revert to their original buffers ([Bridges et al., 2014](#)). Other studies report that some banks raise their capital adequacy ratios to meet the requirement by reducing their risk-weighted assets ([Francis and Osborne, 2012](#); [Gropp et al., 2019](#)).

Finally, the decision to activate the CCyB on this occasion is not to be construed as a pronouncement by the Board regarding a neutral or default level as is the case in some countries (box IV.1). Indeed, this concept and its relationship with other policies is still a matter of debate at the international level; a discussion that the BCCh is following closely in order to keep the policy framework in line with the best practices.

RISK CONTAINMENT MEASURES IN INTERNATIONAL BANKING

In recent months, attention has focused on the financial turbulence that has affected some banks in the United States and Europe. These episodes have occurred in the midst of the interest rate hike cycle in the U.S., following a long period of monetary stimulus, which has exposed the situation of certain entities with risk management problems and other latent vulnerabilities. This has called for the rapid adoption of measures by the monetary and financial authorities to avoid a further propagation of risks and contagion to the rest of the banking industry. This is so despite the fact that international banks in general have more robust solvency and liquidity positions than they did in the past, as a result of the reforms introduced after the Global Financial Crisis, and with authorities that have broadened the set of tools available to address periods of financial stress.

^{2/} Various empirical studies estimate that a 1pp increase in bank capital requirements would reduce the supply of credit by 0.6pp to 8pp ([Malovaná et al., 2021](#); [Fang et al., 2022](#)). In general, the position in this range of results depends on mitigating factors such as the implementation period, the banks' capital buffers (distance to regulatory requirements) and the magnitude of the requirements.



Last March, as a result of the disruptions in the U.S. banking sector, mainly associated with the case of Silicon Valley Bank (SVB), weaknesses were noted in the less strict prudential regulation and supervision framework applied to this type of institution, beyond said bank’s own deficiencies. The Dodd-Frank Act passed in 2010 in the U.S. adopted the Basel III framework, incorporated the concept of systemic bank, and involved the application of more demanding prudential standards to banks with assets of more than US\$50 billion. Subsequently, through a legal amendment in 2018, its application was made more flexible by raising such threshold to US\$250 billion. Among the consequences of that easing, relatively smaller banks, such as SVB, became subject to the partial application of Basel III. While the regulatory application of that legal framework and supervision by the U.S. Federal Reserve (Fed) follow a logic of proportionality in relation to the size and complexity of banks, the rapid growth of SVB—which tripled its assets from around US\$70 billion in 2019 to more than US\$200 billion in 2021—meant a lag in the application of more demanding standards. Indeed, [Fed \(2023\)](#) notes that, during the SVB’s period of strong growth, the corresponding adoption of more strict regulation and supervision was not fast enough, and indicates that the critical areas of the case have to do with governance and risk management.

In particular, less strict regulation and supervision is observed with respect to market-risk management, related to the accounting classification of financial instruments in the banking book. The accelerated growth of SVB was reflected in a high concentration of its balance sheet in investments in financial assets classified as held-to-maturity, unhedged positions that amounted to nearly half of its assets. The Basel III framework allows this accounting classification of financial instruments, according to which regulatory capital is not directly required for the market risk exposure corresponding to assets so classified, considering that changes in the market value of instruments in this accounting classification are not recorded in the income statement as long as they are held to maturity. Therefore, the loss in value of these instruments due to the interest rate increase in the U.S. was not reflected in a proper estimate of the market risks to which the entity was exposed. However, when reclassifying these instruments as “available-for-sale,” for example, in the event of needing to liquidate these assets to meet obligations or deposit redemptions, the bank should recognize these unrealized losses (or gains) at the instruments’ market value.

While the Basel III framework allows for differentiated treatment of the banking book, tools exist that could have mitigated the negative effects observed in the case of SVB. Beyond the accounting classification of investments, Basel III also requires permanent monitoring and analysis of the investment portfolio as an integral part of the supervisory review process, the results of which could imply additional regulatory capital requirements if the supervisor deems it necessary, depending on the risks it detects in each supervised institution (generally known as Pillar 2 requirements). In this sense, the high degree of concentration of SVB’s balance sheet, its rapid growth and volume of financial assets classified in the banking book, in addition to other aspects of SVB’s business model, should have given sufficient information to alert the supervisor, which would have revealed certain weaknesses in the review process.

Regarding liquidity risk management, the application of the short-term hedging standard suggested by Basel III in regional banks would have provided timely warning of management shortfalls, contributing to a more robust supervision. According to Basel III liquidity management standards, banks must maintain a stock of High Quality Liquid Assets (HQLA) to face a 30-day horizon of stressed net outflows. These HQLA must be marked to market, irrespective of their accounting classification, so that a loss in market value of these instruments is necessarily reflected in a decrease in the liquidity indicator, Liquidity Coverage Ratio (LCR), which may provide an early warning to the supervisor. However, these criteria were only partially and belatedly applied to SVB.



The Swiss authorities' handling of the Credit Suisse case—a globally systemic bank—highlights the relevance of the loss-absorbing capacity of AT1 bonds. The process to resolve the situation of Credit Suisse, given its relevance for the Swiss financial system, was based on UBS's merger and acquisition in a transaction for more than US\$3 billion, articulated by the Swiss authorities who, in addition to other measures, decided to wipe out the riskiest debt of the bank instead of imposing additional losses on the shareholders' equity. Thus, Credit Suisse's AT1 bonds were written down by 100%, which meant that holders of those bonds took losses before the bank's shareholders, a practice that is unusual in a bank resolution process. The "AT1 capital" was a Basel III innovation for going-concern loss absorption purposes, i.e. before liquidation and therefore before any senior lenders, and can be written down or converted into equity at specific solvency triggers or instances of intervention by the authorities. The Swiss authority that carried out the wipe-out of the AT1 bonds pointed out that such write-offs were made in response to the exceptional provision of liquidity and intervention by the authorities in the context of crisis management, in accordance with the regulatory framework and the respective contracts.

Events of the recent past illustrate that the treatment of AT1 instruments has had mixed results and reveals their high degree of complexity. In the 2016 Deutsche Bank case, faced with a 20% loss of value in this type of instruments, the bank triggered a repurchase of AT1 bonds to prevent holders from incurring losses. Between 2013 and 2017, convertible instruments generated losses for retail investors in some Italian banks, which prompted regulatory restrictions on their participation in such investments. In contrast, the case of Banco Popular in 2017 stands out, which in the international debate is cited as a positive experience, in which the write-off of AT1 bonds was accompanied by the total loss for shareholders. However, as of December 2019, there were still active legal proceedings by AT1 investors of that bank seeking compensation for their losses.

These adverse events in the U.S. and European banks unfolded rapidly, requiring the prompt and coordinated intervention of the relevant authorities. The episodes that affected some banks in the U.S. and Europe due to the vulnerabilities that they had been incubating^{3/} called for the application of extraordinary measures to safeguard the financial stability of these jurisdictions. In the U.S., the measures adopted to contain risks involved the resolution of some banks, which began to be executed by the Federal Deposit Insurance Corporation (FDIC), and the extension of liquidity lines to the entire market by the Fed. Meanwhile, in Switzerland, the handling of the Credit Suisse situation, which during the last quarter of 2022 alone had already lost a substantial fraction of its deposits, was carried out by the financial supervisory authority, the Financial Market Supervisory Authority (FINMA). Both situations were addressed within less than a week by the competent authorities.

^{3/}The increase in interest rates in the U.S. caused significant losses in banks highly exposed to certain financial instruments, which were amplified in entities with weak risk management. Such was the case of Silicon Valley Bank (SVB) and other regional banks, which faced much larger than expected deposit runs, with a high share of depositors coming from the technology sector, and almost all of their deposits not covered by FDIC insurance. In particular, on March 9 alone, SVB had to honor deposit redemptions of 40 billion dollars ([Fed, 2023](#)). Credit Suisse's situation originated in various problems that had been observed over a longer period of time in that institution, in terms of governance, internal control and reputational effects, unrelated to the cases seen in the United States..



Relying on the appropriate institutional framework and tools to resolve the problems of the affected banking entities in an orderly manner is a key element for risk containment. The FDIC is an independent deposit insurance agency that performs certain bank supervisory functions in addition to its “resolution authority” role. For the latter, the FDIC assumes responsibility for selling the troubled bank’s assets and paying off its debts, including the refund of uninsured deposits, in the least costly manner, while maintaining stability and public confidence through a confidential, transparent and fair process. Cost minimization requirements can be waived for the exceptional case of institutions that present systemic risk, which requires the approval of two-thirds of the FDIC Board, the Fed and the U.S. Treasury. The financial safety net in Switzerland consists of the central bank (Swiss National Bank, SNB), FINMA, the Federal Department of Finance (FDF) and the deposit insurance (esisuisse). The main authority for bank resolution is Finma, whose intervention in this area depends on the severity of the problem, and may temporarily freeze the payment of deposits, define the restructuring and potential sale of the bank and, if there is no possibility of a successful resolution, order its liquidation^{4/}.

While these events in international banking highlight the importance of implementing an appropriate regulatory framework, open questions remain regarding the implications of these recent cases for financial regulatory and supervisory frameworks that will impact future policy development. For example, the accounting classification of investment instruments in the banking or negotiation book and its relationship to the treatment of market risk exposure; the complexity inherent in AT1 capital instruments; and the effectiveness of certain regularization and resolution tools, and their rapid use in conjunction with the imposition of limits on deposit insurance in the era of digital banking, are some aspects of the regulatory framework that will be discussed and reviewed in light of the developments described in this chapter.

MAIN DEVELOPMENTS IN LOCAL BANKING REGULATION

The application of Basel III standards to the entire industry is one of the strengths of the Chilean banking regulatory framework, in addition to the specific characteristics of the local banks. In Chile, as mentioned above, the implementation of Basel III international standards in matters of bank solvency, through capital requirements and risk hedging, was possible after the reform of the General Banking Law and subsequent regulations. For its part, the BCCh directly regulates the liquidity management of banks based on these international standards, which in particular have been gradually incorporated since 2015. These standards apply without distinction to all entities in the banking system, which is a strength of the Chilean regulatory framework. Additionally, the predominant banking business model used in Chile is fairly traditional, focused on granting credit on a diversified funding basis and proper management of maturity mismatches. One important difference with the case of SVB and other banks affected by the global financial situation is the lower presence of financial instruments in the banking book (figures IV.1 and IV.2).

^{4/} For details, go to [link](#).



FIGURE IV.1 ASSET ALLOCATION: SVB VS. CHILEAN BANKING SYSTEM, AS OF DECEMBER 2022
(percent of total assets)

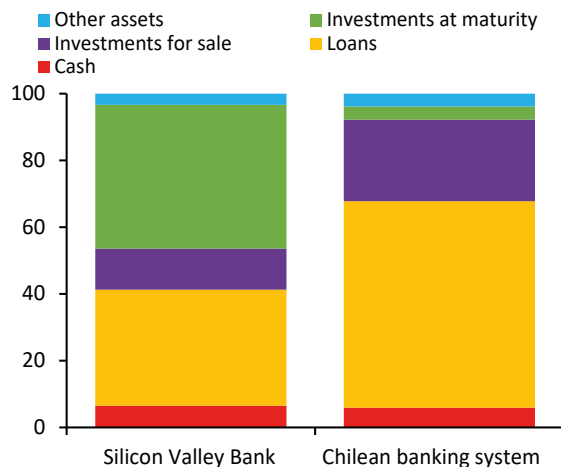
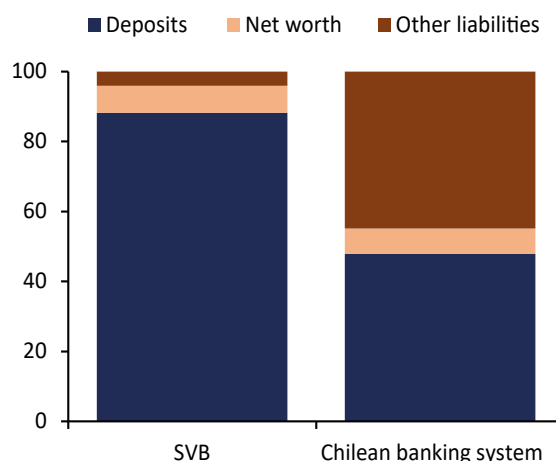


FIGURE IV.2 LIABILITY DISTRIBUTION: SVB V. CHILEAN BANKING SYSTEM, AS OF DECEMBER 2022
(percent of total liabilities)



Source: Central Bank of Chile based on data from the FMC and U.S. Securities & Exchange Commission (SEC).

In particular, it is important to note that the FMC and BCCh regulations contemplate the identification and measurement of interest rate and indexation-adjustment risk for the banking book under conditions of stress. Until last April, these risks for the local banking industry were measured through the provisions in chapter III.B.2.2 of the Compendium of Financial Standards (CNF) of the Central Bank of Chile^{5/}. Since then, the FMC’s regulation on Market Risk Weighted Assets in accordance with Basel III as set forth in chapters 21-7 and 21-13 of its Updated Rules Compilation (Recopilación actualizada de normas, RAN) came into full force^{6/}. In particular, the latter implied that the banking institutions must deliver their full version of the Internal Capital Adequacy Assessment Process (ICAAP) Report in April of this year, which will provide more relevant information to assess the solvency of the institutions based on the material risks of each institution. Also, according to the LGB, having the full ICAAP information will allow the FMC to have a more accurate assessment of the institutions according to their specific risk profiles and, based on this, potentially define additional capital charges associated with the so-called Pillar 2 of Basel III.

Since 2021 to date, three cases of AT1 capital instruments issued by local banks in the form of perpetual bonds have been observed. The LGB incorporated this new component of banks’ regulatory capital, making possible two types of instruments that were previously unavailable to local banks: bonds without maturity (or “perpetual bonds”) and preemptive shares. The fundamental characteristics of AT1 bonds in Chile are defined in the legislation, and include the possibility of conversion into common shares, forfeiture, or depreciation with the possibility of reappreciation as established in the terms of issuance. In accordance with the provisions of chapter 21-2 of the RAN of the FMC, loss absorption by these instruments must be triggered if the CET1 capital level falls below 5.125% of RWAs or a higher level established in the issuance conditions, or in the insolvency situations of Article 130 of the LGB.

^{5/} See Appendix 1.1 of the referred chapter of the BCCh’s Compendium of Financial Regulations. See also chapter 1-13 of the RAN of the FMC, which establishes the obligation for banking institutions to have a Banking book administration policy to ensure its proper management, which entails internal measurement, control and stress testing.

^{6/} This implies the derogation of chapter 12-21 of the RAN and chapter III.B.2.2 of the CNF as from the same date. It also implies changes in the way banks will deliver information regarding flows associated with interest rate and indexation risk in the banking book, replacing file C40 of the FMC’s Bank Information System Manual with file R13 of the Risk System for the supervision of Pillar 2.



As a result of the annual process of defining systemic entities, the additional capital charges were maintained, except for one bank. Last March, the FMC, after a favorable report from the BCCh, determined which banks qualify as systemically important and their respective capital charges. The process, which considers the interaction between the FMC and the BCCh through the delivery of a prior favorable report by the latter, concluded by defining such capital charges, which must be effective as from December 2023, for an amount equivalent to 50% of the charge established by the FMC according to the Basel III implementation schedule (tables IV.1 and IV.2). The FMC included in its regulatory plan for 2023 a revision to chapter 21-11 of the RAN, which defines the factors and methodology for the definition of systemically important banks, in order to evaluate conceptual and measurement aspects of the variables involved. In the current context, and in view of the post-pandemic evolution of the local financial system, the BCCh considers it relevant to permanently review the functioning of the methodologies used for implementing macroprudential tools, in light of the experience observed in recent years.

The new milestones in the implementation of Basel III liquidity standards are aimed at minimizing the risks faced by banks in this area, thus safeguarding the financial stability of the system. In early 2022, the amendment to the liquidity regulation established in chapter III.B.2.1 of the CNF was published, which brought forward the entry into force of the liquidity coverage ratio (LCR) and established the gradual entry of the net stable funding ratio (NSFR), according to which last January the regulatory limit for the NSFR was raised to 70%. In addition, in April of this year the banks submitted the first Liquidity Self-Assessment Report (LSAR), which is one of the elements of the Internal Liquidity Adequacy Assessment Process (ILAAP) whose associated regulations were recently published by the FMC. The main objective of this new process and report is to help minimize the liquidity risks faced by banking institutions, thus safeguarding the financial stability of the overall system. In this first version, the IAL was presented in a simplified format and focused on the most relevant challenges of the period, particularly the expiration in 2024 of the Credit Facilities Conditional on Increased Lending (FCIC) granted by the BCCh during the Covid crisis, as well as the changes in the market and their consequences on wholesale funding.

TABLE IV.1 BASEL III IMPLEMENTATION TIMETABLE (1)

Components		2023		2024		2025		2026	
Basel III framework		1H	2H	1H	2H	1H	2H	1H	2H
RWA* framework	Credit risk								
	Operating risk								
	Market risk	Derogation III.B.2.2							
Conservation buffer		1.88%		2.5%					
AT1		1.0%		1.5%					
Systemic banks (2)		50%		75%		100%			
Core capital deductions		30%		65%		100%			
Pillar II		1st IAPE							
Counter-cyclical capital buffer									
Liquidity regulation	LCR								
	NSFR	70%		80%		90%		100%	
	IAL (3)	1st partial report		1st complete report		ALAC			

- (1) Light-colored cells indicate complete implementation.
 (2) Percent of defined charge to be applied to each bank, according to systemic importance.
 (3) Additional ALAC depends on FMC's evaluation of IAL
 Source: Central Bank of Chile based on FMC data.

TABLE IV.2 ADDITIONAL BASIC CAPITAL CHARGE (percentage of RWAs)

Bank	Assigned charge (1)		Required charge (2)	
	2022	2023	2022	2023
BCI	1.500	1.750	0.375	0.875
Santander	1.500	1.500	0.375	0.750
Estado	1.250	1.250	0.313	0.625
Chile	1.250	1.250	0.313	0.625
Scotiabank	1.250	1.250	0.313	0.625
Itaú	1.000	1.000	0.250	0.500

- (1) Position assigned according to systemic importance score, as published in March of each year.
 (2) Effectively required charge, according to the gradual implementation of Basel III standards for this requirement (table IV.1).
 Source: Central Bank of Chile based on FMC data.



Within the framework of inter-institutional collaboration, the BCCh and the FMC incorporate new projects to their agendas for the continuous development of the local financial and banking market.

The early consultation to enable retained securitization—or self-securitization—schemes, is currently under preparation by the BCCh, which is explained below in this chapter. Along the same lines, the FMC has made progress in the regulatory amendment of its chapter 18-5 of the RAN that requires reporting of loans sold or assigned to securitization companies or securitized credit funds. Among the developments pending implementation of Basel III, another element incorporated in the FMC’s regulatory planning refers to the measurement of credit risk (Standardized Approach for Counterparty Credit Risk) of derivatives operations.

Maintaining convergence with international regulatory standards is particularly relevant in the current context in which some tools for managing critical situations locally are being developed.

The BCCh, in line with the IMF’s recommendations for Chile through the latest FSAP and in close collaboration with the FMC, has made progress in drafting a Memorandum of Understanding (MoU) focused particularly on the management of critical situations that may arise in the local banking and financial system. The objective of this agreement is to allow policy makers to act in a more timely, efficient and informed manner to safeguard financial stability in such situations. With the same purpose, the FMC, the BCCh and the Ministry of Finance are working on a proposal for a Bank Resolution scheme that, in critical banking events, will provide the authority with a broader set of tools to protect depositors, financial stability and public faith in the financial market, safeguarding public interests by keeping the institution’s critical services in operation and minimizing the cost for depositors and taxpayers. This is an important development for the modernization of Chilean legislation, and was raised as one of the usual recommendations of the FSAP for Chile, as an important element in the safety net of the financial system worldwide^{7/}. Typically, critical situations such as those recently observed in the U.S. and European banking systems happen suddenly, so having a set of tools and inter-institutional coordination frameworks in place plays a fundamental role.

REGULATORY AGENDA AND LEGISLATIVE DEVELOPMENTS OF THE CENTRAL BANK OF CHILE

The Bank’s regulatory agenda incorporates new initiatives for 2023: an update of its rules for Payment Card Issuers and Operators, and the enabling of self-securitization schemes. Regarding the payment card rules, the BCCh will soon publish for consultation a package of adjustments that incorporate new requirements for payment processing service providers that settle payments to trade (PSPs or sub-acquirers), dictate rules to allow the operation in the country of the so-called cross-border acquiring, and regulate non-bank issuers of means of payment with provision of funds that, as established in the Fintec Law, may receive money from the public exclusively to make the corresponding payments or transfers of funds instructed by the holder. These adjustments will favor the creation of new business models with the proper safeguards to mitigate risks for the operation of the payment system.

^{7/} One of the G20’s priorities following the Global Financial Crisis has been the implementation of resolution regimes guided by the principles developed worldwide by the Financial Stability Board (FSB). For details, see [FSB \(2014\)](#).



Retained securitization or self-securitization schemes are aimed at facilitating collateral management in liquidity operations with the BCCh and broadening the spectrum of high quality financial instruments.

As mentioned above, the Bank is preparing the early consultation to enable self-securitization schemes. This mechanism consists of the securitization of a portfolio of loans originated by a bank and, simultaneously, the purchase by the bank of the resulting securitized bond. One of the main differences with a usual securitization is that in a retained securitization the bond is repurchased by the same bank that originated the underlying loans, for eventual use as collateral instead of placing the securitized bond in the market. Among the advantages of this type of instrument as a collateral alternative, compared to other instruments usually accepted by the BCCh in situations of financial stress (such as, for example, individual loans), are that they are easier to liquidate in the secondary market and the protection provided by the “separate equity” structure with respect to the originator of the loans.

At the same time, the initiatives underway regarding Low Value Payment Clearing Houses or ACH (CPBV in Spanish) and the first High Value Clearing House for Foreign Exchange Spot transactions (CCAV FX in Spanish) continue to advance.

The CPBV regulation continues with its implementation process, and is currently at the stage of approval of the operating regulations submitted by each of the entities that will make up these clearing houses. These internal rules must define the main aspects of the formation, operation and risk mitigation of the respective CPBV, and must be approved by the BCCh. Additionally, the second stage of this regulation is in progress, which will define the next steps taking into consideration the experience of these clearing houses, which are expected to start operating during the second half of this year. Regarding foreign currency payments, the implementation of the first CCAV FX, operated by ComBanc S.A., continues to advance, including the approval of its internal rules by the BCCh. It is expected to start operations in the last quarter of this year (see [FS Report, second half 2022](#)).

The final stage of the modernization process of foreign exchange regulations will be carried out this year.

In the coming months, the new structure of the Compendium of International Exchange Standards will be published for consultation, along with progress in the development of a new computer system for receiving forex information. Thus, at the end of this process, progress will have been made in several aspects, namely a reduction of the regulatory burden by eliminating some of the information delivery requirements; a contribution to the internationalization of the Chilean peso through the broad authorization to carry out cross-border operations with local currency; and a more secure and efficient system for complying with the information delivery obligations that still exist. Table IV.3 shows schematically the progress of these and other recent BCCh initiatives.

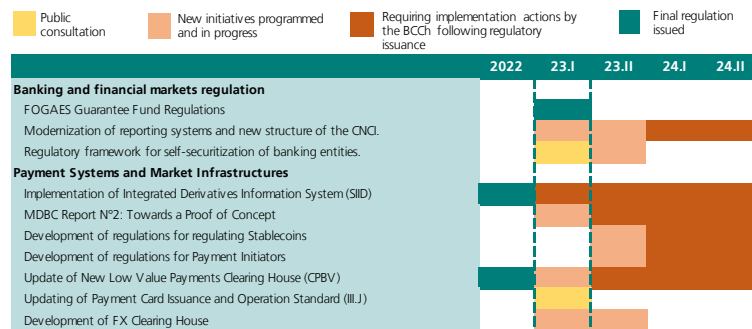
In terms of legislative advances, it is worth mentioning the Resilience bill recently submitted to Congress, which will open up opportunities for market development and strengthen the Bank's capacity to manage liquidity stress situations.

Among the proposals of this bill, the possibility of extending the BCCh's financial services^{8/} to financial market infrastructures and non-banking financial intermediaries ([FSR second half of 2022](#)); and the strengthening of the legal framework applicable to sale and repurchase agreements or repo transactions stand out, since it would allow conferring legal certainty to the compensation of such transactions in case of defaults, through the recognition of Framework Agreements for contracting them (box IV.2). The implementation of these initiatives will contribute to the soundness of the financial system, facilitating optimal financial intermediation in stress situations, as well as contributing to the effectiveness of the BCCh in its essential function of safeguarding the continuity of internal and external payments.

^{8/}The Central Bank's financial services to the financial market in Chile are of three kinds: (i) cash settlement by the Central Bank to banking companies and other institutions expressly authorized by the BCCh's Constitutional Organic Law, which translates into the opening of current accounts and access to payment settlement in the RTGS System; (ii) liquidity and deposit facilities to banking companies; and (iii) Emergency Liquidity Assistance to solvent banking companies that present a transitory liquidity shortage



TABLE IV.3 FINANCIAL POLICY INITIATIVES OF THE CENTRAL BANK OF CHILE



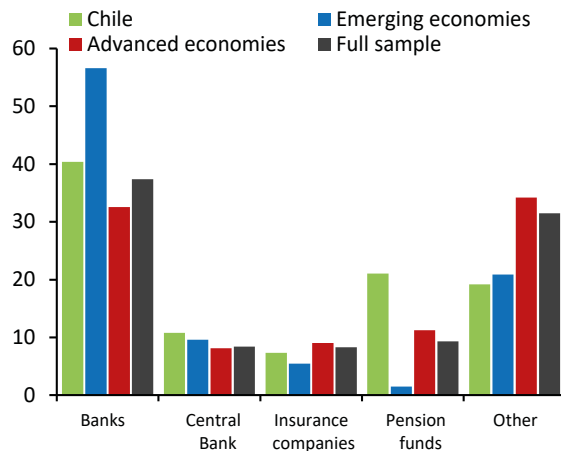
Source: Central Bank of Chile.

These initiatives are consistent with recent international analysis and with the importance of non-bank intermediation in Chile. As noted in chapter I, shallower local financial markets have repercussions on access to long-term financing and on the economy's capacity to respond to external shocks. In this sense, recent international studies show a renewed interest in the role of non-bank financial intermediaries for financial stability and the importance of central bank liquidity support for the sector ([GFSR, 2023](#); [GMR, 2022](#)). This analysis is particularly relevant for Chile, considering the importance of the non-bank sector in the local financial system. Although the local banking system appears to be more developed than that of other emerging economies, it is the pension funds that stand out as a highly developed sector in Chile even compared with advanced economies. Additionally, it should be noted that other financial intermediaries (such as mutual funds and insurance companies, among others) show a degree of development comparable to that of other emerging economies and grew steadily until 2019 (figures IV.3 and IV.4).

Other relevant legislative advances are the entry into force in February of the Fintec Law, whose regulatory implementation has a term of up to 18 months, and the recent first-stage approval of the consolidated debt bill. The Fintec Law promotes competition and financial inclusion through innovation and technology in the provision of financial services, and to this end amends several laws that regulate the financial market. Most of these reforms will come into force once the FMC issues the corresponding regulations, as is the case of the Open Finance System and the new products and services that enter the regulatory framework. The FMC estimates that this process involves about 70 regulations and has considered different instances for the participation of interested parties. As regards the BCCh, it must regulate payment initiators when they temporarily hold their clients' money in their operations, and may also regulate the so-called stablecoins, insofar as they are used as means of payment. Likewise, the consolidated debt bill was recently approved in the first constitutional procedure, which, as the BCCh has repeatedly pointed out in previous reports, will improve the credit risk management carried out by different financial intermediaries and improve the capacity to monitor indebtedness and financial stability by the financial authorities.

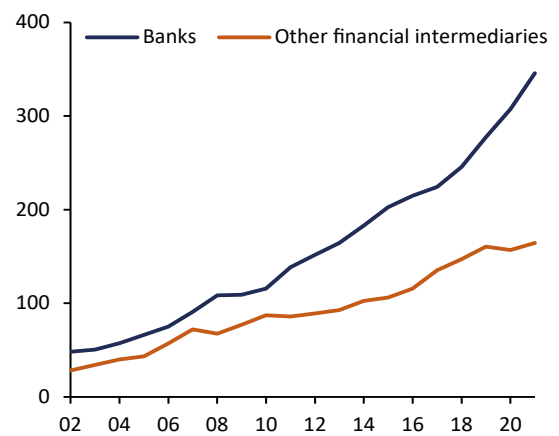


FIGURE IV.3 PARTICIPATION OF SECTORS OF THE FINANCIAL SYSTEM, BY JURISDICTION
(percentage of total financial assets)



(*) Data as of December 2021. Includes mutual and investment funds, non-bank credit providers, securities agents, stockbrokers, and others according to criteria of each jurisdiction based on national accounts standards. Source: Central Bank of Chile based on [FSB \(2022\)](#).

FIGURE IV.4 BANKING SECTOR TOTAL ASSETS AND OFI (*)
(billions of dollars)



(*) Latest data: 2021. OFI category includes mutual and investment funds, non-bank credit providers, securities agents, stockbrokers, and others according to criteria of each jurisdiction based on national accounts standards. Source: Central Bank of Chile based on [FSB \(2022\)](#).

Finally, the reactivation of the debate on the adoption of a risk-based capital requirements and supervision scheme for the insurance industry—which plays a key role in the local economy—is expected to take place in the short term. International experience shows a clear trend towards supervisory systems focused on risk analysis and risk management by the supervised party, known as risk-based supervision models. Following the advances in international best practices, the FMC, jointly with the insurance industry, has long advanced in the development of this scheme within the possibilities allowed by the legislation in force. However, the full adoption of this model requires modifying the current basic solvency requirements to incorporate the concept of risk-based capital, aligned with the focus of supervision and administration of companies in risk management. Both the BCCh and the FMC have emphasized the importance of advancing in this initiative, considering the relevance of insurance companies in the local financial system, their important participation in financial conglomerates, and their role in the pension system associated with the provision of life annuities and coverage through death and disability insurance policies.



BOX IV.1:

Countercyclical Capital Buffer Implementation in the World

The conduct of financial policy through macroprudential measures has gained importance in the last fifteen years, in terms of both the number of tools available and the number of countries that use them. Since the Global Financial Crisis, most countries have implemented and activated different macroprudential tools, applying progressively more challenging requirements—in part due to the gradual implementation of Basel III—to boost the resilience of their financial systems. During this period, the shock of the Covid-19 pandemic led to a generalized relaxation of a broad set of macroprudential measures in various jurisdictions, in order to provide space for financial agents to accommodate the shock while minimizing its amplification, which illustrates the countercyclical or precautionary logic of this policy framework (figure IV.5)^{1/}. In particular, the tools whose use has increased most sharply since their incorporation into Basel III standards have been the conservation capital buffer, the additional capital charge to systemically important financial institutions, the restriction on total (non-risk-based) leverage, and the Countercyclical Capital Buffer (CCyB).

The international experience suggests that an increasingly broad spectrum of policy fundamentals is guiding the application of the CCyB. The central objective of this macroprudential tool is to build up an additional capital requirement that can be released in situations of relevant financial disruption, thereby seeking to maintain the provision of credit and other banking services over the financial cycle. This core objective has remained unchanged over time; however, the understanding of the appropriate period to build up this additional capital requirement has evolved. Initially, it was considered that the instrument should be activated during “periods of excessive credit growth,” seeking a second effect of mitigating systemic risk buildup (BCBS, 2010)^{2/}.

However, in practice, it has been opted to accumulate this buffer as soon as possible, increasing the resilience of banks without necessarily seeing excessive increases in the credit cycle (BCBS, 2017). Subsequently, it increased the weight of a precautionary approach in the use of this tool by keeping the CCyB activated at a level considered adequate to generate regulatory capital buffers in a standard or normal risk environment (BCBS, 2021 and 2022); the Bank of England (BoE) pioneered this concept by declaring in 2016 its intention to keep the requirement at around 1% in a standard risk environment, increasing this neutral level to 2% in 2019. According to the BoE, this strategy would facilitate releasing the requirement in case of risk materialization, and would reduce the economic cost of the CCyB and its adjustments relative to the level of risk (BoE, 2016 and 2019).

^{1/} In the context of this box, a contractionary policy is understood as the activation of some tool or an increase in some requirement, while a policy is considered expansionary when its relaxation results in release or decrease.

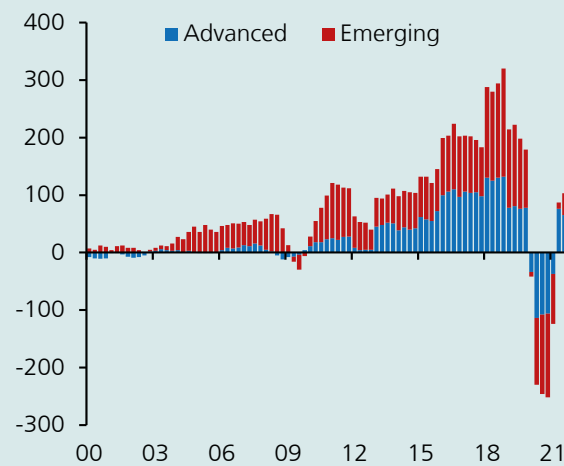
^{2/} Given its potential to “manage” the aggregate credit cycle, it would either mitigate or contain the expansionary phase of the credit cycle or reduce the risk of credit supply being constrained by regulatory capital requirements when the CCyB is deactivated in the contractionary phase of the credit cycle.



At the onset of the pandemic, countries that had opted to use the CCyB with a precautionary approach deactivated or progressively reduced it, preventing the amplification of the shock and maintaining the provision of credit. The vast majority of countries that had their CCyB activated at a positive level at the beginning of 2020 deactivated it almost simultaneously with the beginning of the pandemic, resulting in a first large-scale test of the tool. Empirically, it has been found that in those jurisdictions where the CCyB, and other capital requirements, were released, somewhat higher credit growth tends to be observed, although other contemporaneous support measures may have played a role. In those jurisdictions where the CCyB approach has begun to be adopted as a precautionary measure, in a significant number of cases normal or standard conditions are defined in which it is possible to build up this capital buffer with the objective of increasing the resilience of the financial system, such that in conditions of severe financial stress this buffer can be released. Following this logic, the appropriate conditions for building up the buffer may include credit contractionary scenarios (BCBS, 2021 and 2022).

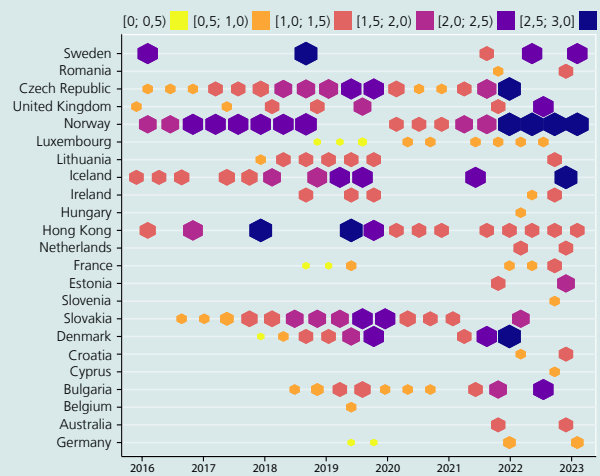
Because the release of the buffer applies to the entire banking system, the signaling effect with respect to the situation of individual banks is avoided. Evidence shows that banks are reluctant to reduce their capital in times of stress, since this would signal vulnerability, resulting in procyclical behavior that may amplify a negative credit cycle triggered by stress scenarios. The fact that the authority defines its deactivation for the system as a whole helps to mitigate this effect in the event of using the capital buffer generated (Celedón et al., 2023). It should be noted that countries that did not have this buffer activated opted for other macroprudential measures, such as delaying the implementation of Basel III standards—as was the case in Chile—or relaxing other capital requirements—such as the conservation buffer or the systemic credit charge (BCBS, 2021 and 2022).

FIGURE IV.5 DIRECTION OF MACROPRUDENTIAL POLICY (*)
(net number of decisions, moving annual sum)



(*) Contractionary (expansionary) macroprudential policy corresponds to a dichotomous variable that takes a value equal to 1 (-1) when the respective decision is taken, and 0 otherwise. Bars denote the net value between the total number of decisions adopted in both directions for all countries in the sample, such that positive values indicate that more contractionary than expansionary measures were adopted and vice versa. For details, see Alam et al. (2019).
Source: Central Bank of Chile based on iMaPP-IMF data.

FIGURE IV.6 ANNOUNCED LEVEL FOR CCyB (*)
(percent)



(*) Brackets in legend ranges indicate which values are included in each range. For example, yellow markers indicate announcements for CCyB levels less than 0.5%; orange indicates announcements for the CCyB level greater than or equal to 0.5% and less than 1%; and so on. Size of markers associated with values of the advertised CCyB.
Source: Central Bank of Chile based on BIS and ESRB.



Since the last FS Report, some jurisdictions announced or did a CCyB activation. According to the BIS and ESBR, in the last six months, 22 out of the 49 countries for which information is available have decided to activate for the first time, maintain an activation carried out previously, or continue with a gradual process of increasing the countercyclical capital charge (figure IV.6). The motivations have been varied and are related to the incubation of risks in the real-estate sector, credit activity, the greater degree of local or global uncertainty, among others. Of these countries, mostly European given the nature of the sample, fifteen correspond to advanced economies and seven to emerging ones; this contrasts with the greater heterogeneity of the remaining jurisdictions that have never announced the activation of this tool^{3/}. Also, it is worth noting the use of non-conventional or countercyclical requirements alternative to the Basel III CCyB—such as the domestic stability buffer in Canada, or the sectoral countercyclical buffers in Belgium, Germany and Switzerland focused particularly on the residential mortgage sector—, in order to direct the higher cost of capital to the market segment where the greatest risks are concentrated^{4/}. Also noteworthy are jurisdictions that have recently announced that they will maintain a positive CCyB on an ongoing basis during normal times, such as Australia, the Netherlands and Sweden^{5/}.

All in all, the international experience accumulated since the incorporation of this tool in the Basel III framework points to a consolidation of its use with a precautionary logic. The close link between the credit cycle and CCyB contained in the initial BIS approach has been losing relevance in practice. The original idea has given way to an application with a preventive approach, which seeks to increase the resilience of the system when conditions so permit and in consideration of the risk environment, thus allowing for a more flexible and efficient management of this buffer.

^{3/} Note that the figure includes Belgium, which only announced the activation of the CCyB before the Covid-19 pandemic, but it did not go into effect due to its retraction in 2020.

^{4/} Canada has actively used its domestic stability buffer (DSB), a requirement similar to the CCyB that applies to Canadian domestic systemically important banks and operates in addition to the Basel III systemic charge. Currently, systemic banks are charged a systemic charge and DSB of 1% and 3% of RWA, respectively ([OSFI, 2022](#)). Belgium, Germany and Switzerland apply sectoral countercyclical buffers, particularly focused on the residential mortgage sector. In Switzerland, the “sectoral CCyB” directed at domestic residential mortgage loans stood at 2.5% of such exposure in January 2022; in March 2022, in Germany the “sectoral systemic risk buffer” was raised to 2% of residential mortgages as a complementary instrument to the conventional CCyB; and in May 2022, Belgium introduced additional capital requirements on banks’ residential real-estate exposure that apply internal models to determine their risk-weighted assets ([BIS, 2022](#)).

^{5/} In Australia, by the end of 2021, the supervisory authority considered in the new regulatory capital framework a default CCyB level of 1%, which became effective in January 2023 and can vary between 0 and 350 bp; this, with the aim of improving the flexibility of the regulatory framework and macroprudential responses. In Europe, the Dutch National Bank is targeting a CCyB of 2% in a standard risk environment to better account for the inherent uncertainty in measuring cyclical systemic risk, with the possibility of exceeding 2.5% if risk conditions warrant it, and also in Sweden, to ensure the possibility of freeing up capital for Swedish banks during a crisis, Finansinspektionen will apply a positive neutral rate for CCyB of 2%, with the possibility of raising it above 2.5% if systemic risks are high or growing significantly faster than is sustainable in the long term.



BOX IV.2:

Strengthening the repo market

The repo market is an important pillar in the operation of developed markets. Repos are financial transactions in which the parties agree simultaneously to the spot sale of some financial instrument, together with a commitment to purchase it in the future, at a predefined price. Financially, the repo acts as a collateralized credit, in which the security in question constitutes the collateral for the transaction. These transactions are widely used in developed money markets, e.g., the Eurozone (US\$10.3 trillion), the United Kingdom (US\$9.3 trillion) and the United States (US\$4.4 trillion), which contrasts with the US\$3 billion in Chile (table IV.4). These operations are of interest to various agents, such as banks, institutional investors and other financial and real sector entities, who resort to the money market to manage their short-term liquidity, or to monetize low-risk assets that are tied up in their balance sheets (table IV.4).

A developed repo market has several benefits for the proper functioning of financial markets in general.

At least four relevant elements are recognized: (i) they act as a low-cost short-term funding alternative, facilitating access through the use of low-risk securities as collateral; (ii) they allow diversifying participants' funding sources; (iii) they contribute to reduce financial market volatility; and (iv) they allow agents to be less dependent on the liquidity tools provided by central banks ([BIS 2017](#), [IMF 2022a](#))^{1/}. Every active, functional repo market with a diversity of participants strengthens the financial market against liquidity shocks, thus allowing institutions to obtain additional funding.

Although these operations are not risk-free, the regulatory advances resulting from the 2008 financial crisis are an important mitigating factor for the proper development of this market in Chile.

Part of the lessons learned was that over-reliance on short-term funding operations (e.g. via repos), without the proper safeguards, could create problems for financial stability through two channels: (i) by amplifying the liquidity risk for the debtor party if unable to renew its funding lines, and (ii) by amplifying market risks for the creditor party in the event of losses in collateral value ([BIS, 2017](#)). Thus, one of the pillars of the post-crisis strengthening of the regulatory framework was precisely to limit and manage liquidity, maturity change and leverage risks. Along these lines, in the case of Chile, the adoption of Basel III, including its liquidity risk components (LCR and NSFR) by the BCCh is worth singling out.

The International Monetary Fund, as part of its evaluation of the Chilean financial sector in 2021, recommended to advance in measures to develop this market.

In particular, [IMF \(2022a\)](#) it suggested establishing an inter-institutional working group for the development of the market, together with defining a strategy for this purpose, considering incentives and possible improvements in the relevant market infrastructures. These recommendations come in addition to the interest of local participants, who have expressed, within the framework of the BCCh's National Markets Committee, the need to reinforce this market.

^{1/} The possibility of repo transactions between financial institutions reduces the need for central bank intervention as liquidity providers to the market in episodes of financial stress, safeguarding the central bank's ability to intervene in extreme situations.



Although it has been present in the objectives of policy makers, this market is not yet as deep as it is in other comparable countries. Recognizing the importance of the repo market, in 2012 the Financial Stability Board (FSB) created a working group to prepare a diagnosis and generate proposals for improvement. Accordingly, the “Productivity Law” in 2016 (Law 20,956) made explicit the obligation of transferring ownership of the securities committed in a repo transaction through a securities depository company, adjusting Law No. 18,876 for that purpose. However, repos in Chile are still relatively restricted to the securities intermediary sector, while in the interbank market (table IV.5), deposit certificate operations dominate.

An important consideration for the proper functioning of this market is the treatment of transactions in the event of default by any of the parties. In an active repo market, counterparties may have many contracts in place at any given time, with cash and cross-paper flows, different maturity horizons, among other contract-specific terms. Therefore, for participants in this market, especially intermediaries that potentially have multiple counterparties—both bank and non-bank—it is essential to have full certainty as to the net balances of aggregate transactions, including the execution of the securities delivered as collateral, and to be able to proceed in an orderly manner in the event of a counterparty’s default. Such certainty and order in the enforcement of contracts is also necessary in order not to inhibit the action of the authorities, for example in case the intervention of any financial institution is required.

In view of the above, the Resilience bill provides clarity as to which repo transactions are eligible for special compensation mechanisms in the event of default by one of the parties. For these purposes, the Project qualifies those repos made under a Framework Agreement recognized by the BCCh as a related obligation^{2/}. Hence, the gross balances or cross positions between the parties are protected, as is the execution of guarantees, thus providing full certainty in the determination of the net balance owed, and extending the protection mechanisms for the non-failed portion of the repo and the financial stability safeguards provided for in the law.

TABLE IV.4 SIZE OF SELECTED REPO MARKETS
(in billions of dollars)

Jurisdiction	Size (*)	% GDP
Eurozone	10,374	71%
United Kingdom	9,328	298%
United States	4,300	18%
Japan	1,495	30%
Brazil	316	20%
Canada	211	12%
Mexico	132	10%
Chile	3	0.9%

(*) Size refers to the amount outstanding in repo transactions at the end of December 2021, except for Canada, which refers to the end of June 2018.

Source: Central Bank of Chile based on information from the FMC, [Banco Central do Brasil \(2021\)](#), [BIS \(2017\)](#), [IMF \(2022b\)](#), [ICMA \(2022a, 2022b\)](#), [SIFMA \(2022\)](#).

TABLE IV.5 THE LOCAL INTERBANK MARKET IS BASED ON THE ON DEPOSIT CERTIFICATES TRANSACTIONS
(figures in millions of dollars and percentages)

Interbank Transactions	2019	2020	2021	2022
Amount (millions of dollars)				
Current account and deposits	2,345	2,435	4,432	5,662
Certificates of deposit	5,706	4,220	4,849	5,441
Bonds	1,864	1,750	2,675	3,559
Credit	189	344	161	30
Total	10,104	8,749	12,117	14,692
Percent (%)				
Current account and deposits	23%	28%	37%	39%
Certificates of deposit	56%	48%	40%	37%
Bonds	18%	20%	22%	24%
Credit	2%	4%	1%	0%

Source: Central Bank of Chile based on FMC data.

^{2/}The related obligations are defined in Art. 140 of the Law of Reorganization and Liquidation of Companies and Individuals (Law 20,720). The Framework Agreements are standardized contracts that set forth the general conditions to which repo transactions between the parties are subject, in addition to regulating aspects related to the management of risks inherent to this type of transactions, such as the definition of events of default and the manner of providing additional guarantees in the event that the securities lose market value during the term of the operation.



V. HOUSEHOLDS' FINANCIAL RESPONSE TO THE PANDEMIC AND THEIR VULNERABILITIES IN THE CURRENT CONTEXT

Much of the vulnerabilities affecting households today are rooted in the Covid-19 pandemic, and more specifically in the policy reaction to it. Economic support measures, both in nature and in magnitude, generated an unprecedented transitory increase in household liquidity. This increased liquidity provided temporary slack, which for some time reduced their credit risk. However, the macroeconomic and financial imbalances generated by the abrupt increase in liquidity have been significant and persistent, affecting the households themselves. In addition, pension fund withdrawals—which accounted for roughly two thirds of the increased liquidity—have had negative effects not only for households, but for the economy at large. In the current context, the risks faced by households, particularly the lower-income ones, are associated with a more prolonged than expected adjustment process of the related macroeconomic and financial imbalances.

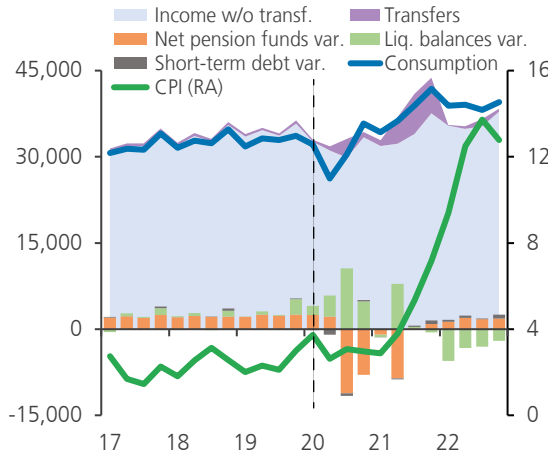
THE PANDEMIC, THE POLICY RESPONSE AND HOUSEHOLD LIQUIDITY

Before the social outbreak and the pandemic, Chilean households in general did not present significant financial imbalances. The May 2019 version of this Report devoted a chapter to the analysis of households' financial risks and vulnerabilities. Its main conclusion was that at that moment, no significant mismatches were detected in the sector. Households lived in a stable macroeconomic environment, with no major volatility in their income and consumption levels (figure V.1), and the sector's balance sheet had undergone gradual changes over time ([Cortina and Martínez, 2023](#)). However, as a result of the social outbreak and, to a greater extent, of the pandemic, the households' macro-financial environment changed radically.

The mobility restrictions resulting from the sanitary crisis translated into lower consumption and an income shock for households, which in several countries prompted a policy response associated with employment protection and liquidity provision. In its early stages, the economic shock was similar across countries and had two main components. On the one hand, fear of contagion and mobility constraints reduced consumption in economic sectors where face-to-face interaction was unavoidable ([Chetty et al., 2022](#); [Madeira, 2022a](#)). On the other hand, the contraction of activity in these sectors translated into an employment and income shock that spread throughout the economy and hit hardest on lower-income households ([Barrero et al., 2020](#); [Madeira, 2022a](#); [Crossley et al., 2021](#)). The expectation that this was a transitory shock ([FSB, 2022](#)) motivated a policy response aimed at sustaining productive capacity and providing support to households. Around the world, the main elements of the economic policy mix were employment protection and direct transfers to households ([IMF, 2021](#)). The relative importance of each of these elements varied across countries.

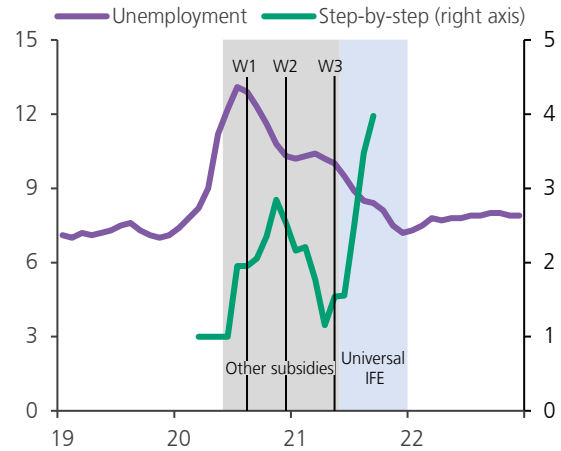


FIGURE V.1 MAIN HOUSEHOLD SECTOR AGGREGATES AND INFLATION (*)
(billions of constant December 2021 pesos, percent)



(*) Dotted vertical line marks onset of Covid pandemic. Income w/o transf.: household income net of current transfers. Transfers: net current transfers to households. Liquid balances: cash and demand deposits.
Source: Central Bank of Chile.

FIGURE V.2 UNEMPLOYMENT, OPENNESS RATE AND HOUSEHOLD LIQUIDITY POLICIES (*)
(percent, index)



(*) Step by Step Index reflects population-weighted average of the phase in which each district was at each moment in time, with 1 being the strictest confinement and 5 the maximum openness. Number 1 is imputed to the months between the first confinement and the launching of the Step by Step plan (March-June 2020). W1, W2 and W3 indicate start dates of pension-fund withdrawals. IFE: Emergency Family Income.
Source: Central Bank of Chile based on information from INE and the Center for Mathematical Modeling, University of Chile.

In Chile, the policy reaction, in terms of household assistance, was substantially greater than in other economies and involved an unprecedented increase in household liquidity. In addition, an important part of this increase occurred when the confinement measures were being phased out. Considering pension withdrawals, direct support measures to households were equivalent to 28.9% of 2019 GDP, a figure almost ten times higher than in countries such as the United Kingdom or Belgium (Cerletti et al., 2023a). Moreover, the form and timing of the support measures had particular characteristics in Chile. On the one hand, 96% of the support was provided through the direct provision of resources to households, which meant an increase in the sector's liquidity of approximately US\$78 billion over a period of 18 months. Of the increase in liquidity, around two thirds came from the three pension fund withdrawals. The rest came from direct government transfer programs, most importantly Emergency Family Income (IFE) in its different versions. On the other hand, almost 60% of direct transfer expenditure and some 30% of pension withdrawals were made beginning in the last half of 2021, when the containment measures were beginning to be definitively relaxed and unemployment had declined considerably from its peak when the pandemic erupted (figure V.2)

Direct transfer programs temporarily increased the income of most households, with greater force in lower-income ones. According to the Households Finance Survey EFH 2021, with respect to 2017, income in real terms of the median household—which does not consider liquidity from pension withdrawals—grew by 37.1%, 27.2%, 12.8% and 2.2% for quintiles first to fourth, respectively, and decreased 5.6% for the highest-income quintile (figure V.3). These increases in income are largely explained by direct transfers to households and in particular by the Emergency Family Income IFE (Results Report, EFH 2021). Thus, the subsidy component during the pandemic was bigger for the lower-income quintiles (figure V.4), which were more harshly affected by the adverse employment shock. The size and scope of these programs meant that for a large number of households, direct transfers more than compensated for the income loss associated with the pandemic, while they were in place.



FIGURE V.3 ACTUAL HOUSEHOLD INCOME (1)
(median, thousands of Dec.2021 pesos)

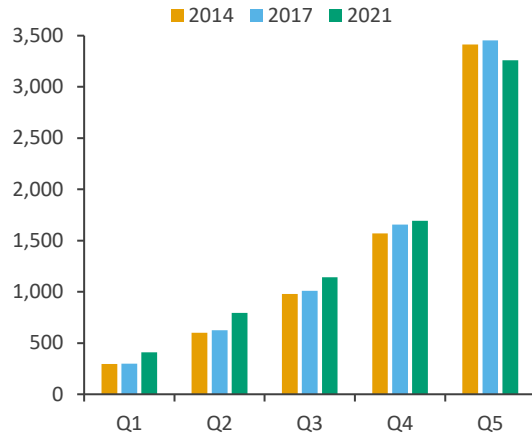
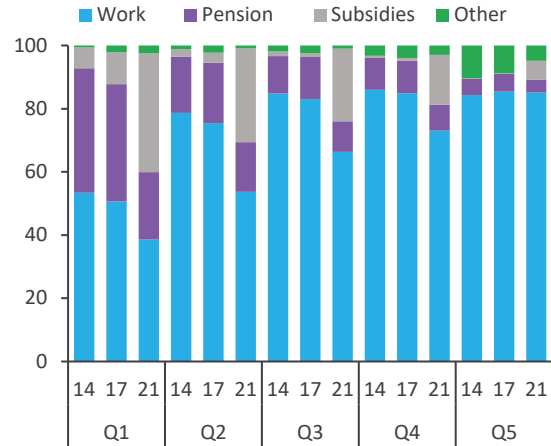


FIGURE V.4 INCOME COMPOSITION (1)(2)
(percent of income per quintile)



(1) Quintiles defined according to household income in Households Financial Survey, EFH. Labor: income from salaried or self-employed activities. (2) Pensions: income from self-funded and solidarity pensions (excludes pension withdrawals). Subsidies: direct monetary transfers received by the household. Other: capital income, rents, severance payments, tax refunds, own consumption and other income not related to work. Source: Central Bank of Chile based on the Household Financial Survey, EFH.

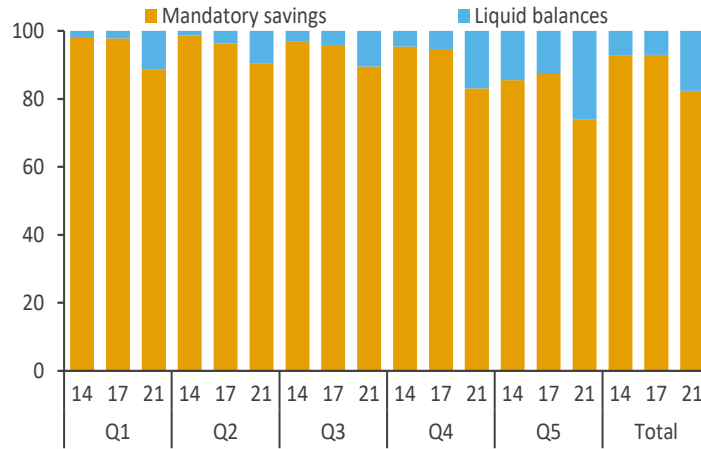
The liquidation of pension savings caused an abrupt change in the composition of the household balance sheet towards a higher proportion of liquid assets. By withdrawing their pension savings, households replaced illiquid long-term savings with non-indexed liquid instruments, such as balances in bank accounts, which increased their relative importance in the household balance sheet (figure V.5). This translated into an increase in the fraction of households holding savings in checking and demand accounts, as well as in the amount of savings, with greater force for higher-income households. The accumulation of liquid balances during the pandemic is partly explained by precautionary savings and later by the need to finance future consumption ([Cerletti et al., 2023a](#)).

In turn, the liquidity from pension withdrawals was not focused on the households most affected by the pandemic-related economic shock and led to a greater drop in the pension balances of lower-income households. On the one hand, most of the amount taken out of pension funds was withdrawn by higher-income households. In fact, the total amount withdrawn by households was higher the greater their income (figure V.6). On the other hand, lower-income households withdrew a larger proportion of their pension balances, which will result in a decrease in these households' contributory pensions ([Inzunza and Madeira, 2023](#)). Finally, lower-income households were able to withdraw less and less compared with higher-income households (figure V.7).

Moreover, pension withdrawals entail both short- and long-term costs for the overall economy. Part of the pension withdrawals have been used to finance greater consumption of both local and foreign goods and services, resulting in a decrease in the savings stock of households and the economy. At the same time, withdrawals involved a massive transfer of resources from the capital market to the banking system. Less aggregate savings in the economy and a shallow capital market reduce the economy's capacity to respond to adverse shocks from abroad ([Berstein and Marcel, 2019](#)) and contribute to aggravate inefficiencies in risk allocation ([Carrière-Swallow and Céspedes, 2013](#); [Madeira, 2023b](#)) and in resource misallocation ([Bau and Matray, 2023](#)). Meanwhile, pension withdrawals imply that, in the context of the current pension system, a greater number of households will depend on the solidarity pillar to finance their pensions ([Inzunza and Madeira, 2023](#)). This situation could discourage households from saving voluntarily due to a lower precautionary motive, affecting aggregate long-term savings ([Madeira, 2022b](#); [Storesletten et al., 1999](#)).



FIGURE V.5 MANDATORY PENSIONS SAVINGS AND CURRENT ACCOUNT BALANCE (*)
(by income quintile, percent)



(*) Quintiles defined by household income (Households Financial Survey, EFH).
Liquid balances: holdings and balances in current/demand current accounts with saving motive.
Source: Central Bank of Chile based on Pension Superintendency data.

FIGURE V.6 CUMULATIVE WITHDRAWN AMOUNTS (*)
(billions of pesos, quintile total)

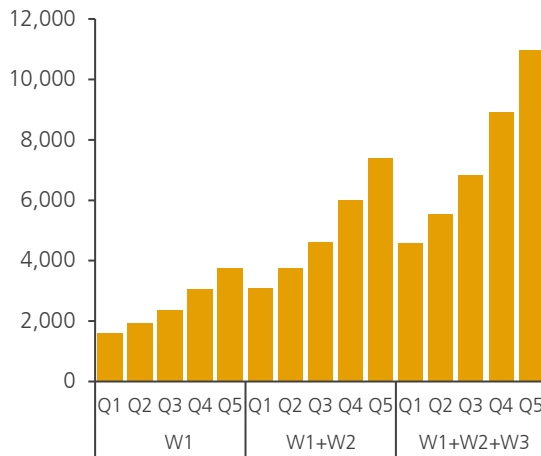
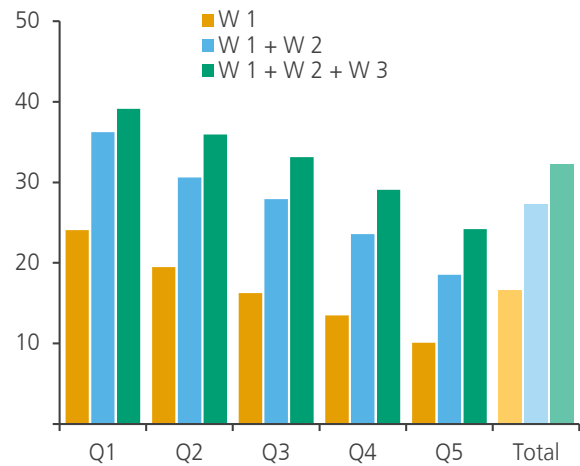


FIGURE V.7 PERCENT WITHDRAWN FROM BALANCE, CUMULATIVE (*)
(quintile average)



(*) Quintiles defined by household income (Households Financial Survey, EFH). W1, W2 and W3 stands for withdraw 1, 2 and 3 respectively.
Source: Inzunza and Madeira (2023).



HOUSEHOLDS' FINANCIAL RESPONSE TO LIQUIDITY SHOCKS AND IMBALANCES IN THE MACRO-FINANCIAL ENVIRONMENT

Successive liquidity shocks to households fueled spending, which contributed to the rise and greater persistence of inflation. After having fallen early in the pandemic due to mobility restrictions, household spending increased significantly above its pre-pandemic level along with the increase in direct transfers, with greater force towards the second half of 2021, with the implementation of the universal IFE. This high spending level persisted beyond the end of the transfer programs and was financed with households' liquid balances, accumulated from pension withdrawals and fiscal transfers (figure V.1). In turn, the increase in household consumption boosted domestic demand, which resulted in a persistent increase in inflation ([box I.1 in December 2022 MP Report](#)). Transitory increases in income and changes in the composition of households' balance sheets towards liquid assets can generate persistent increases in household spending, most strongly in those households facing credit constraints ([Kaplan et al., 2018](#)). Furthermore, it is possible that part of the liquidity obtained from pension withdrawals has been considered as a wealth shock by some households. In fact, approximately an additional 21% of affiliates will rely on the solidarity pillar to finance their pensions, with a fiscal cost of roughly 70% of the total amount of withdrawals ([Inzunza and Madeira, 2023](#)). To the extent that these households do not expect to finance directly or indirectly the higher expenditure of the solidarity pillar in the future, a significant portion of the resources withdrawn constituted a positive income shock for them, which may have reinforced the transfers' effect on consumption.

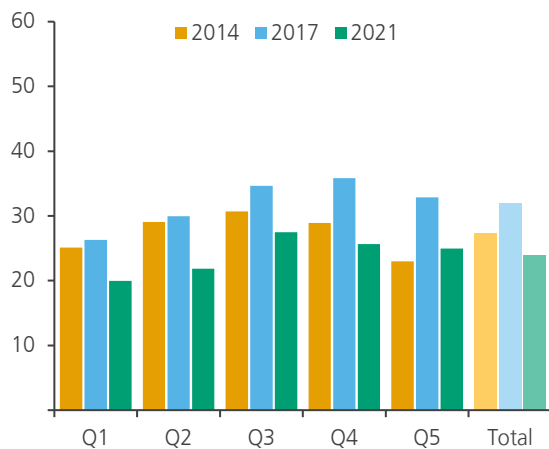
The change in the balance sheet generated a transitory accumulation of slack that loosened household credit constraints, which may have reduced the effectiveness of monetary policy. The increase in the percentage of liquid assets on the households' balance sheets resulted in that, when the support measures were ended, the fraction of households facing financial constraints had decreased with respect to 2017 in all income quintiles (figure V.8). This result is robust to different measures of financial constraints based on households' holdings of liquid assets ([Inzunza and Romero, 2023a](#)). The decrease in financial constraints faced by households by the end of 2021 may have temporarily attenuated the effectiveness of monetary policy, since household consumption was less sensitive to changes in economic activity, which is an important channel for its transmission ([Kaplan et al., 2018](#); [Slacalek et al., 2020](#)).

Meanwhile, the greater liquidity available reduced household demand for credit and temporarily reduced their debts. As has been documented in previous versions of this Report, the fall in consumption that occurred at the start of the pandemic was accompanied by a decline in households' consumer debt. Subsequently, the liquidity shock they experienced reduced their demand for short-term credit ([box II.1 in FSR second half 2022](#)) and induced the repayment of this credit category ([Cerletti et al., 2023b](#)). Thus, the fraction of households with consumer debt and the amount of consumer debt was significantly reduced during the pandemic. This reduction was more pronounced among lower-income households and was concentrated in more expensive debts, with greater force in non-bank credit suppliers. In the particular case of liquidity from pension withdrawals, bank debtors used part of it to repay revolving loans and delinquent debt; however, its effect was transitory ([Cerletti et al., 2023b](#)). The liquidity shock does not seem to have had a significant effect on household mortgage indebtedness, which continued to grow among higher-income households ([Results Report, EFH 2021 and chapter II](#)).

The fewer households with debt and the decrease in the financial burden meant a transitory reduction in the sector's credit risk indicators. The lower short-term indebtedness of households during the sanitary crisis caused a fall in their financial burden, which reduced the fraction of households with a high debt service ratio (DSR) in all income quintiles (figure V.9) and household debt-at-risk ([Cerletti et al., 2023a](#); [Madeira, 2022a](#)). In turn, the default rate of bank consumer debt fell to historical lows for all income quintiles of debtors (figure II.14), a result that is partly explained by the households' greater liquidity ([Cerletti et al., 2023b](#)).

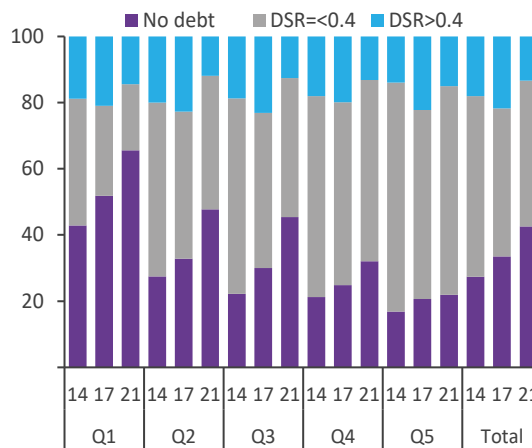


FIGURE V.8 HOUSEHOLDS UNDER LIQUID WEALTH CONSTRAINT (*)
(percent of total households by quintile)



(*) Quintiles defined by household income (Households Financial Survey, EFH). A household is considered constrained if its liquid wealth (cash income and liquid assets, net of non-mortgage debt) is below 30% of its total monthly income.
Source: Inzunza and Romero (2023a).

FIGURE V.9 DEBT COMPOSITION (*)
(percent of households by category)



(*) Quintiles defined by household income (Households Financial Survey, EFH). DSR: ratio of household's financial burden over income.
Source: Central Bank of Chile based on Households Financial Survey EFH.

SOURCES OF FINANCIAL VULNERABILITIES AND RISKS IN THE PRESENT CONTEXT

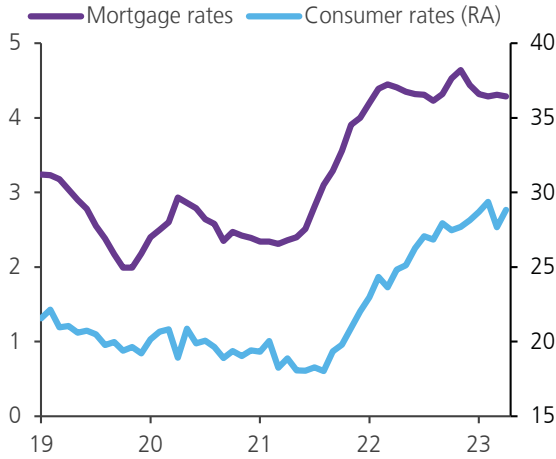
The imbalances driven by the liquidity shock to households contributed to an increasingly deteriorating macro-financial environment for households from the end of 2021 onwards. At the expiration of the support measures, aggregate demand showed a significant recovery, which, however, was unsustainable ([MP Report, December 2021](#)). Households faced rising inflation and expectations of a less dynamic labor market ([MP Report, March 2022](#)). This was compounded by an increase in the cost of financing consumer and mortgage debt of the households (figure V.10), and a supply of credit that soon tightened, especially for consumer loans (figure V.11).

The deterioration of the macro-financial environment meant that the extraordinary liquidity accumulated by households began to shrink, particularly among lower-income households. The persistent increase in household spending beyond their income level (figure V.1) meant that available liquidity began to dwindle (figure V.12) and financing needs increased (figure V.13). In some households, mainly lower-income ones, liquidity dried up earlier, which prompted the use of revolving credit and an increase in the default rate of consumer debt ([FSR, second half 2022](#)).

At the same time inflation contracted the discretionary income of households. Inflation affects households' ability to pay by reducing their discretionary income, i.e., that which is available after paying basic necessities and taxes, and which can serve as a cushion against unexpected adverse shocks. For the representative household, current inflation levels have increased the ratio of expenditure to income in all income quintiles, which has negative consequences for its welfare and increases its probability of default. This effect is greater in lower-income households that, because of their high proportion of basic needs, have little or no financial margin ([Inzunza and Romero, 2023b](#)).

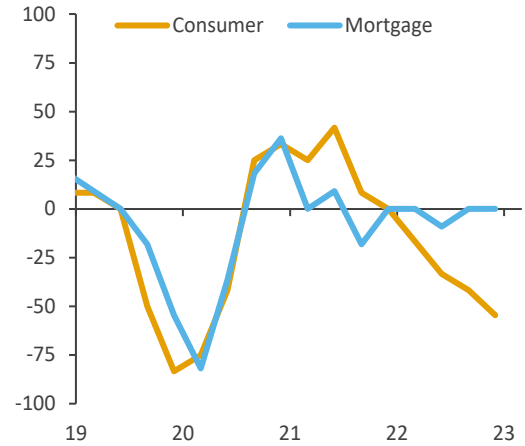


FIGURE V.10 FUNDING COSTS (*)
(percent)



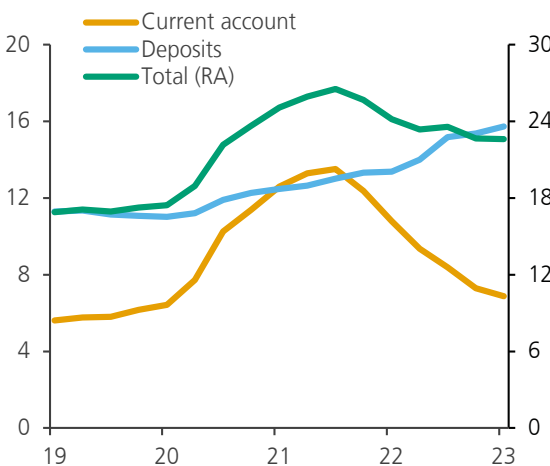
(*) From average lending rates in the financial system, by type of credit (mortgage and consumer).
Source: Central Bank of Chile.

FIGURE V.11 CHANGE IN THE PROVISION OF BANK CREDIT TO HOUSEHOLDS (*)
(percent)



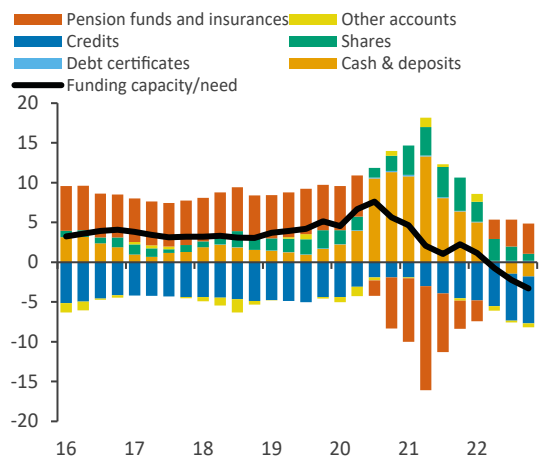
(*) Difference between the number of surveyed banks who responded that credit approval standards were less restrictive to some degree, and the number who felt that such standards were more restrictive to some degree, as a percent of total responses.
Source: Central Bank of Chile.

FIGURE V.12 HOUSEHOLDS' LIQUID BALANCES
(percent of annual GDP (*)



(*) As percent of average annual GDP with moving quarter.
Source: Central Bank of Chile.

FIGURE V.13 HOUSEHOLDS' FUNDING NEEDS
(moving annual sum, percent of GDP (*)



(*) As percent of quarterly GDP.
Source: Central Bank of Chile.



Inflation has also augmented the financial burden of those with mortgage debt, increasing the probability of default. Inflation increases the financial burden on households with indexed debt, which is mainly the case for mortgage loans. Although mortgage debt is the most important for households in all income quintiles, most of it is concentrated in higher-income households ([Cortina and Martinez, 2023](#)), which have a greater financial margin, thus mitigating this development. However, leveraged retail investors—reviewed in chapter II of previous reports—may be somewhat more vulnerable.

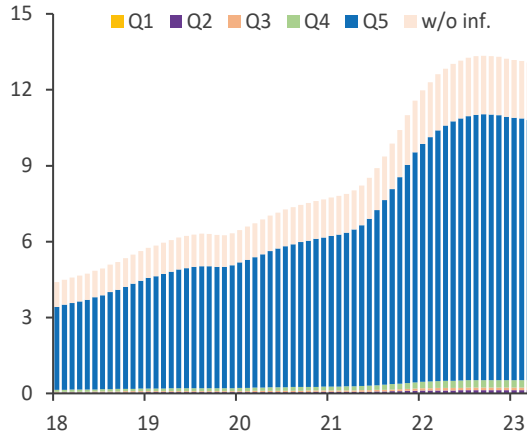
In addition to the effects of inflation on indexed debt, the rise in interest rates has further added to the financing burden of those households with revolving credit and variable-rate mortgage debt. The increase in the cost of household financing affects those homes dependent on revolving credit and those with variable-rate mortgage loans. The former correspond mostly to lower-income households ([Cortina and Martinez, 2023](#)), while the latter are concentrated among higher-income borrowers. About 10% of the mortgage debt stock is indexed to a mixed rate, while only 3% is indexed to a variable rate (figure V.14). It is estimated that the representative mixed-rate mortgage debtor will experience an increase of 4 percentage points in his or her financial burden in 2024 (figure V.15), that is, close to 20%.

These developments have influenced the increase in default in the households' consumer portfolio, particularly in revolving credit and lower-income families. Although bank consumer debt still remains below 2019 levels in real terms (figure III.1) and the financial burden for the median debtor has remained stable since the last FSR (figure II.13), default of consumer debt has increased most recently (figure II.14). This phenomenon cuts across all income quintiles, although it is more pronounced in lower-income households and in the revolving loan portfolio. Nevertheless, the banks' exposure to this segment is limited (figure V.17).

In today's context, the risks faced by households are associated with an extension, beyond expectations, of the process of adjustment of macroeconomic imbalances. In this scenario, a greater number of households would increase their short-term indebtedness, in a context of high financing costs and a constrained credit supply. A quantification of household credit risk under different scenarios can be found in the households stress test (box V.I), the updated results of which are shown in chapter II of this Report.

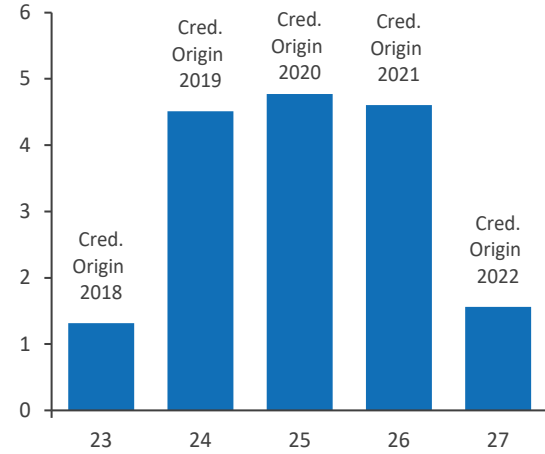


FIGURE V.14 STOCK OF MORTGAGE DEBT INDEXED TO NON-FIXED RATE BY INCOME QUINTILE (*) (percent of stock)



(*) Non-fixed rate includes variable and mixed rates. Q1 up to 262,000 pesos; Q2 between 262,001 and 556,000 pesos; Q3 between 556,001 and 950,000 pesos; Q4 between 950,001 and 1,680,000 pesos; Q5 between 1,680,001 and 2,800,000 pesos (taxable ceiling), according to SuSeSo. Source: Central Bank of Chile based on data from the FMC and Superintendency of Social Security (SuSeSo).

FIGURE V.15 CHANGE IN FINANCIAL BURDEN OF MORTGAGE DEBTORS DUE TO MIXED RATE READJUSTMENT (*) (percentage points, median debtor)



(*) Bars represent the change in financial burden of borrowers who took out mixed-rate loans between 2018 and 2022, at the time their rate became variable (five years into the loan). That is, for mixed-rate loans taken out in 2018, a change of 1.3pp is expected in their financial burden in 2023. Source: Central Bank of Chile based on data from the FMC and Superintendency of Social Security (SuSeSo).



BOX V.1:

Households' stress tests: a microdata-based approach

International experience suggests that the probability of individual default increases in the face of higher unemployment risk and/or high levels of indebtedness or financial burden (Goodman et al., 2010). These two situations affect non-payment through at least two channels: i) an adverse impact on liquidity either through lower income or higher expenses and/or ii) price reductions in the underlying asset like, for example, when the value of a home falls below the amount owed. In Chile, the first of these channels is the most relevant given the responsibility scheme, where debtors respond with the totality of their assets until the full repayment of their unpaid debt, also known as full recourse (Avanzini et al., 2020; Madeira, 2018).

By analyzing granular information, it is possible to estimate the effect of a shock to the household default rate on the credit risk of the banking system using individual-debtor characteristics. The households stress test^{1/} quantifies the effect of income, interest rate and indexation shocks on the occurrence of bank default. The use of microdata is fundamental to account for household heterogeneity. The evidence suggests that non-payment is more frequent among debtors with lower labor income and in consumer debt (figure V.16). This is internalized in the strategy of banks, which show lower exposure in these segments (figure V.17). The advantage of using individual information to model credit risk is that it allows incorporating the interactions between these general trends and the characteristics of each debtor.

The empirical default model considers both the dynamics of the labor market and the individual's financial situation and its outcome is synthesized in an aggregate metric: the debt-at-risk. The first stage is a job destruction model that seeks to measure the individual probability of losing a job. It considers labor income, duration of relationship with the employer, gender, economic sector of the employer, as well as time- and region-specific effects. The second stage consists of two default models, one for consumption and the other for housing debts. The non-payment decision is modeled as a function of the probability of job loss—predicted in the previous stage—, labor income, financial burden, age, gender, employer's economic sector, and time- and region-specific effects. Then, three simultaneous aggregate shocks are considered: the first one is a rise in the unemployment rate in one year; the second is an increase in interest rates on consumer and mortgage loans; and the third is a UF-indexed debt shock. The model allows assigning a probability of default to each person for each type of debt based on their individual characteristics and associating its determinants to the proposed shocks. Finally, with the result of the estimated non-payment, the debt-at-risk^{2/} can be computed (diagram V.1).

The results indicate that income shocks are essential in the determination of default, above those on indexation and interest rates. In turn, it is observed that, in the face of a similar income shock, consumer default responds in greater magnitude, and faster, compared to mortgage default. The latest results of this exercise are presented in chapter II of this Report.

^{1/} See [Córdova and Toledo \(2023\)](#).

^{2/} The debt-at-risk is calculated as the sum of total individual debt times the estimated probability of non-payment for each individual.



FIGURE V.16 PROBABILITY OF NON-PAYMENT BY INCOME QUINTILE (*)
(percent)

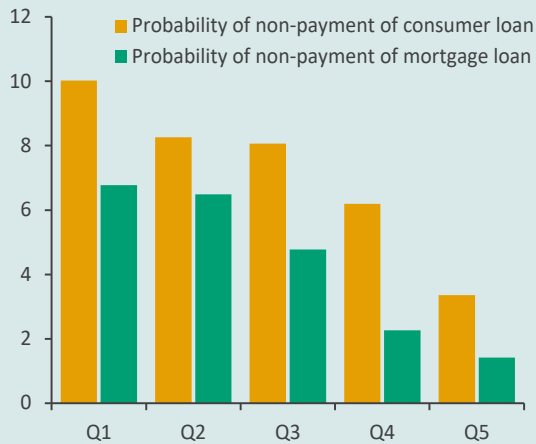
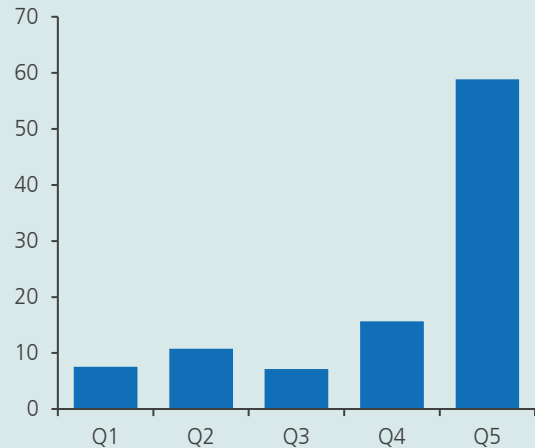
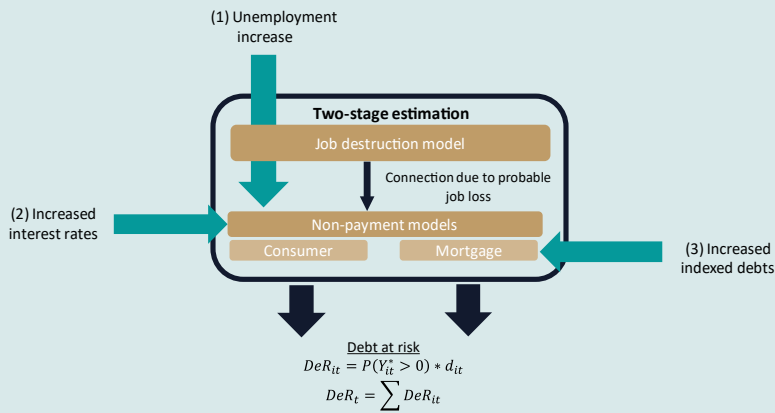


FIGURE V.17 SHARE OF BANK DEBT (*)
(percent of consumer and mortgage loans)



(*) Q1 up to 262,000 pesos; Q2 between 262,001 and 556,000 pesos; Q3 between 556,001 and 950,000 pesos; Q4 between 950,001 and 1,680,000 pesos; Q5 between 1,680,001 and 2,800,000 pesos (taxable ceiling).
Source: Central Bank of Chile based on data from FMC, SuSeSo and Electoral Service (Servel).

DIAGRAM V.1 ESTIMATION STRATEGY (*)



(*) Green arrows point to the three shocks examined. The income and occupational status predictions of the first stage feed the non-payment models, through which the predicted probability of individual non-payment by type of debt is obtained. From this it is possible to compute the mass of vulnerable debtors (with high burden and/or indebtedness), and by weighting the probability of default by amount owed, the debt-at-risk indicator is obtained (dark arrows)
Source: Central Bank of Chile.

